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China Report

AGRICULTURE

No. 139

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CHINA REPORT

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NATIONAL

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VIEWS ON OUTFLOW OF RURAL LABOR

Reasons for Problem

Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12, 5 Dec 80 p 24

[Text] Editor's Note: The two following articles express different views on the issue of outward flow from rural villages of workforces. Other places have also expressed views on this matter. Just how to understand it and handle it awaits further investigation and study, clarification of circumstances, and analysis of reasons to find a suitable means of solution.

At present, some worrisome problems have arisen in rural villages, which are manifested in the following: Speculation and profiteering have become common practices as large number of the workforce do not participate in agricultural production for long periods of time. A "five trades" person working on his own has 2 or 3 apprentices working for him, but only the master receives any money. Countless problems exist in production teams, where the outflow of large amounts of the workforce cannot be brought under control, and numerous problems are difficult of solution. In agricultural production, harvesting, planting, and tending are not done on time, and teams are powerless to combat calamities.

The situation in the rural labor force today is as follows: At around age 20, people look for work (entering plants as apprentices or working temporarily); around age 30 they leave (due to business, or to become peddlers, or to do hauling); around the age of 40, they idle about; and before they turn 50, they stay at home (to work in sideline occupations). If later on not only can scientific farming not be promoted, but there are no successors even for the old way of farming, think how dangerous that will be!

Since speculation and profiteering have become common practices in rural villages, a minority of people are pleased at heart; in the collective, no one cares at heart; grassroots cadres are sad at heart; the masses lack heartfelt belief in the "four modernizations," and we are extremely worried at heart, fearful of rural village polarization and of taking a retrogressive road. Yet one dare not speak nor dare care, because propaganda reports are a jumble with no unified line; those above do not declare where they stand, and those below shrink from doing anything. This situation seriously impairs the consolidation of the socialist system, and impedes the march toward the "four modernizations." If this situation continues, within as much as 2 or 3 years or as soon as next year, agricultural production will drop tremendously, and it is hard to tell how the situation in rural villages will change.

Some say "the collective has not become rich and the per unit price for farm labor is too low; as a result people leave." This is both right and wrong. Let me ask you, when a person leaves, he can earn more than 10 yuan a day. By what means and at what time will the per unit price of farm labor be raised this high?

My own view is that in view of the present flight of the rural village workforce, management must be firmly taken in hand and some rules and regulations formulated. An immediate halt must be put to speculation and profiteering and the sale of worthless securities. The "five trades" in rural villages must be organized and managed in a unified way by communes and brigades, and the small number of strong, able-bodied workers who abandon agriculture to take up business or do nothing but sideline occupations must be given intensive indoctrination and have necessary restrictions placed upon them. The system of responsibility for production must be bolstered and walking the collective road to riches must be adhered to.

Some Solutions

Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12, 5 Dec 80 pp 24 & 20

[Article by Qi Zhanjing [2058 0594 0079]

[Text] Recently some strong remarks have been heard from some commune and brigade cadres about the outward flow of the rural workforce. They say that there is no way to control the rural workforce, that speculation and profiteering have become common practices, and myriad "five tradesmen" have left. This is a sign of the restoration of the old order and the beginning of polarization. They demand quick action to bring it under control.

Is there truly any danger of a large scale outflow of workforce from rural villages? I think this is not entirely the case. Mostly it is that some cadres do not understand the liberalization of policies.

A series of policies that have followed in the wake of the Third Plenary Session of the 11th Party Central Committee have greatly aroused the socialist enthusiasm of the peasants, and farm machines have further shown their effectiveness. Thus, in vast numbers of rural villages that already had a large population relative to arable land, the labor force has become even more redundant, and if no alternatives are found for this excess labor but rather there is only constant exhortation for "return to the fields of the labor force," with numerous people doing the work of one and numerous people dividing the income of one, would this not cause everyone to sink into poverty together. In places in which the collective is hard put to find opportunities for excess labor, taking the lead in organizing those commune members who have skills to find opportunities for themselves is advantageous for the country, for the collective, and for commune members, and it is allowed by policies. In 1978, 200 people in the Magezhuang Production Brigade of Kouzhuang Commune in Ji County averaged per capita distributions of only 68 yuan. Beginning in 1979, the brigade signed contracts with 22 who wanted to leave on their own accord, requiring that those who left would have to tender 50 yuan monthly to the brigade, for which a full month's workpoints would be recorded. These personnel who left both redistributed surplus personnel to places where they were needed and worked in the bustling marketplace, but also tendered more than 10,000 yuan a year to the collective. The labor force engaged in agriculture decreased, and a system of responsibility for production was set up, with the result that grain output increased 19 percent, the contribution made to the state increased 70 percent; per capita distributions increased an average 22 yuan, and the collective repaid loans and began to operate a beancurd shop as a sideline industry.

In some communes and brigades, the free outflow of the labor force exists, and speculation and profiteering has also raised their heads. Investigation shows that when the collective economy is run properly and distributions average more than 200 yuan per capita, such problems are virtually non-existent. In most brigades, problems are not many; it is mostly in brigades that have long been impoverished and backward that the masses have lost confidence in the collective, that the cadres no longer care, and there is a substantial flight of labor. Therefore, the key lies in doing a good job of collective production, in strengthening and improving the system of responsibility for production, and in strengthening the indoctrination and management of those who leave.

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NEED TO IMPROVE FISCAL MANAGEMENT STRESSED

Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12, 5 Dec 80 p 8

[Article: "Fiscal Management Must Be Restructured"]

[Excerpt] Current administration and management of the rural village collective economy has two fatal weaknesses. One is an incompletely sound system of responsibility for production, and the other is fiscal management is in a mess. CCP Committees at all levels must focus this winter and next spring on these two issues of improvements in the system of responsibility for production, and restructuring of fiscal management, conscientiously taking them in hand in order to arouse the enthusiasm of the masses of commune members, to make the most of the superiority of the collective economy, and to win sustained fairly large scale development of agricultural production so that the peasants may become prosperous with all possible speed.

Once a fairly perfect system of responsibility is in place, becoming prosperous will entail attention to fiscal matters. Right now fiscal management of the rural collective economy is in quite a mess. Extravagance and waste is serious; large amounts of funds are tied up, and economic results are poor. The result is increased output without increased earnings, failure to make good on distributions, much work but not much gain, or even "loss of money on increased output, and poor brigades with high output," about which the masses of cadres have strong objections. It is said that because rural communes and brigades make expenditures without plan, incur expenses without fixing limits, and lack management of materials, irregular expenditures annually amount to about 15 percent of total expenditures and about 6 billion yuan is wasted. In the tieing up of funds, as of the end of last year, overspending and owing of funds by commune members and monies owned by commune and brigade enterprises and by state enterprises amounted to more than 17 billion yuan. As for poor economic results, income generated per yuan invested declined from 3.77 yuan in 1957 to 2.92 yuan in 1979. In 1979, both earnings and distributions were the highest in history, but in per capita terms, total income was 156.80 yuan while total expenditures were 52.70 yuan. National tax revenues, collective withholdings, and commune member distributions amounted to 5.06 yuan, 14.90 yuan, and 84.20 yuan respectively. Commune members led a hard life all year long, earning little, so how could their enthusiasm for labor not be dampened? Consequently, leadership comrades in the central government recently noted that lack of good fiscal management was a deadly problem in the consolidation and development of the collective economy. The time has come when restructuring of fiscal management must be done. If it is not, the enthusiasm of commune members aroused by strengthening and perfecting the system of responsibility for production will be dampened, and the overall situation of the rural collective economy will remain impossible to stabilize.

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PROTECTION, MANAGEMENT OF FORESTS DISCUSSED

Better Protection, Management Needed

Beijing RENMIN RIBAO in Chinese 25 Feb 81 p 2

[Article by Zhang Anghe [1728 2491 0735], Chinese Academy of Forestry Science; Lin Longzhuo [2651 7893 0587], Zhan Zhaoning [6124 2507 1380], and Zhao Rong [6392 2837], Ministry of Forestry; and Li Haiwen [2621 3189 2429], Beijing Forestry Academy]

[Text] Protection and management of existing forests is the foundation for the development of the forestry industry. For a long time China's forests have been constantly subjected to serious destruction, the fundamental reason being a lack of protection and management of existing forest resources, with resultant losses that will be difficult to recoup.

Statistics derived from a nationwide check on forest resources conducted in 1946 show that China's forests (meaning tree forests) cover an area of 1.83 billion mu and have a total timber volume of 9.5 billion cubic meters. When taken together with the existing more than 130 state-owned forestry enterprise bureaus forested areas, the more than 3,800 state-owned forest farms, plus the collective forest areas, the size of forest resources is quite impressive.

This provides a strong base for developing Chinese forestry industry- and it is also a solid base for developing the forests. With the consolidation and improvement of this base, it can provide a steady stream of accumulated funds, technical experience, a source of varieties, talented people, ecological and environmental benefits, and such conditions for enlarging further production in the building of the forestry industry.

China now has 2.51 billion mu of forests (of which 1.83 billion mu are tree forests, and 680 million mu is sparsely wooded and shrub forests), and 1.17 billion mu of barren mountains and wastelands suitable for forests. In terms of quantity, the existing forested area is dominant; moreover forested land soil fertility, climatic suitability, and quantity of growth is between 100 and several hundred percent higher than unforested barren mountains and wastelands. Therefore, vigorous efforts must be made to afforest and make green barren mountains and wastelands suitable for forests while making full use of advantages provided by existing forests.

China has a large area of barren mountains and wastelands. Since Liberation, an area totaling 1.5 billion mu has been artificially afforested, and the survival rate has been more than 400 million mu. Despite the large scope of afforestation, real increase in forest reserves has not been much. Reserves from 30 years of artificial afforestation total less than 200 million cubic meters, which is 2 percent of total reserves from existing forests, and only less than 10 percent of this is mature forests that can be cut for use. These forests cannot make up for the current annual consumption of more than 200 million cubic meters of forest resources. Furthermore, annual growth of existing forests amounts to 220 million cubic meters, more than the reserves in the artificially afforested forests. The forest resources annually consumed are compensated for principally by annual growth of existing forests. In recent years, as a result of reckless cutting and denudation and concentrated overcutting, the annual volume of consumption of forests has steadily increased, and the ability to compensate this consumption has gradually declined, thereby lowering benefits from the protection of forests. Therefore, protection and good management of existing forests is a top priority task for China's forestry industry.

Standards for the administration and use of China's existing forests are currently too low. Forest reserves of forested areas of the northeast and Nei Monggol total 3 billion cubic meters, which is more than the combined resources of West Germany, Japan, Finland, and Sweden, yet lumber output is much lower than theirs. The forests of Sweden and Finland, which are located in the frigid zone of northern Europe, annually grow more than 3 cubic meters per hectare, and timber output is more than 2 cubic meters per hectare. In northeast China and in forested areas of Nei Monggol, however, annual growth is only 1.5 cubic meters per hectare, and annual timber output is 0.7 cubic meters per hectare, a great difference. In West Germany, forest growth reaches 5.5 cubic meters per hectare annually and produces 4 cubic meters of timber annually, between two and four times that of the forested areas of China's northeast and Nei Monggol. With effective management, China's existing forests have a great potential for increased output.

Therefore, the starting point and the focus of attention in the modernization of China's forestry industry must be placed not only on the planting of trees for afforestation and expansion of forest resources, but also on an intensification of protection and management of existing forests to increase forest protectivity at all possible speed. Doing this will require:

1. Consistent authority over forests, reforms to the system, and intensification of management. Forestry production is characterized by being longterm, continuous, and easy felling but difficult regrowing of trees. The multiple benefits of forests greatly surpass the scope of a single enterprise or region, and ramify into the security of the country and the welfare of posterity. Japan and some other countries place all forests under the unified control of the state, using laws to control the forests. In China, forest management is extremely weak as a result of which forests have been steadily destroyed. Forestry units have a responsibility they cannot shirk for the poor protection and management of China's forest resources, but the problems are such that no single forestry unit can solve them. Just take a look at administration and management, which has been multiple management for a long period of time with many quarters vieing for lumber. Authority over forests has not been consistent; policies have changed

frequently, etc., all of which are major reasons for the destruction of forests. Therefore, urgently needed is consistent authority over forests, reform of the system of forestry management, institution of a scientific system of management for forest resources, and strict supervision and management of forest resources in accordance with law.

2. Expansion of the Autonomy of Forestry Production Units and the Use of Forests to Grow Forests

China makes too little investment in the building of forestry, and prices paid for lumber are unreasonable, with the result that forestry production units find it difficult to maintain simple further production to say nothing of expanding further production. Such a state of affairs must inevitably lead to the destruction of forest resources. In order to develop forest resources, in addition to a suitable state increase in investments in forestry, urgently needed is reform in administration and management, and using forests to grow forests, by which is meant an expansion in the autonomy of forestry production units whereby forestry units may sell their product at prices that match the value of timber, or themselves engage in processing and sales, or whereby business units plow back into forestry production units the profits they have made from the processing and sale of timber, so that forestry production units will have the financial resources to sustain further production as well as be able to make a profit. Only by having an integrated system of management including forestry, industry, and commerce in which forestry is dominant can it be assured that the green mountains will continue to endure, that they will be continue to be used forever, that they will produce more and more, and that they will improve with cutting.

3. Rapid Development of New Forest Areas and Implementation of Sensible Cutting

Eighty-five percent of the lumber output in the current state plan is produced in an area concentrated in one-fourth the area of the country's forests, which results in partial overcutting and proportional imbalance, both causing a dramatic decline in resources in the overcut forest area, and a large backlogging of overly mature trees in forest areas that have not yet been developed, resulting in a decline in overall forest production. Therefore it is necessary to hasten development of remote forest areas in order to reduce pressure on overcut forest areas and to increase timber output fairly rapidly.

4. Active Propagation of Reserve Forests and Increase in Forest Growth Rate

China has 1 billion mu of middle aged and young forests, most of which have not been tended and have not grown properly. Costs for tending young forests amount to only one-fourth the cost of afforestation, and quantity of growth in forests that have been tended can increase by as much as from 50 to 100 percent. A large equantity of timber can be obtained at the same time as well. In China cutting in tended areas amounts to less than 5 percent while in West Germany and Sweden, 50 percent of the logging is done in tended areas. Henceforth, if China is able to tend one-third of the middle-aged and young forests, an additional more than 100 million cubic meters of timber can be grown, and the output of lumber will also greatly increase. At the same time, logged areas and empty areas in forests must be put to use with reforestation of rapidly growing highoutput trees to solve the lack of China's forest reserves.

We have emphasized the intensification, first of all, of protection and management of existing forests to consolidate development of the foundation for the forestry industry. At the same time, it is necessary to launch the afforestation of areas without forests or with thinly wooded forests to increase the shelter benefits of forests. China has done a lot of afforestation in the past, but the survival rate has only been one-third. This has also been the result of poor care resulting from an emphasis on afforestation but a slighting of care. Only by a combination of scientific management, rational use, and active development of forests so that the multiple benefits of forests and production of lumber are organically unified can there be an all around increase in the effectiveness of forestry operations.

Relationship to Economic Readjustment

Beijing RENMIN RIBAO in Chinese 26 Feb 81 p 5

[Article by Xu Senzhong [1776 2773 1813] and Qi Bingkun [4359 3521 0981]]

[Text] In the readjustment of the national economy, attention must be given to forestry problems. China has made great achievements since Liberation in the planting of trees to create forests, but reckless logging and denudation, destruction of forests to clear farmland, and mountain forest fires have also severely damaged existing forests. A survey conducted in the major national timber producing region of Guangxi shows that an average 1 million mu of forests are cleared annually to make farmland, 300,000 mu of it having been done in a single year in the single prefecture of Baise. During the period from the winter of 1978 to the winter of 1980, there were almost 5,000 instances of mountain forest fires, which destroyed a forest area of 2.57 million mu equal to 1.6 times the 1.6 million mu area afforested during 1979 and 1980. When regular annual logging of about 5 million cubic feet of timber, which converts to 500,000 mu of timber, is added to this, an annual decrease of about 3 million mu of forested area occurs. Guangxi presently has 82.6 million mu of forests, but if this state of affairs continues, within 27 years all of it will have been destroyed. Fujian Province is one of the four main forest areas of China with a forested area that currently totals about 70 million mu. At the present time, only 9 million cubic meters of timber may be felled annually, but 13 million cubic meters is actually consumed. Total reserves declined in the 15 year period from 1957 to 1972 from 340 million cubic meters to 240 million cubic meters with logging greatly outstripping afforestation. In 1973, Zhejiang Province's forest reserves totaled 29 million cubic meters, but by 1977 forest reserves had declined to 18 million cubic meters. At this rate, within 6 or 7 years, the entire province's forests will be completely cut bare. Nationally, the area of forest cover has increased but little since Liberation, and unless reckless logging and denudation is halted, within 20 or 30 years all the forests that can be logged will have been cut down. This is an extremely serious problem.

Theimportance of the forestry problem cannot be looked at solely in terms of the forestry industry but rather in terms of its relationship to the entire structure of agriculture and the entire national economy. Only in this way can the position and function of forestry be seen fairly clearly. The structure of agriculture is essentially a problem in how farming, forestry, and livestock raising are combined and in what proportions they are developed. The lessons of 30 years experience are: if farming squeezes out forestry and the livestock raising industry, there can be no smooth development of all of agriculture. In agriculture, the position of farming, forestry, and livestock raising must be equal. Any notion that only farming is important and that the other two industries can be dispensed with is dangerous. At the present time, farming, forestry, and livestock raising are imbalanced with forestry lagging particularly badly. In 1978, farming accounted for 67.8 percent of the total output value of agriculture; forestry accounted for 3 percent, the livestock industry accounted for 13.2 percent; sideline industries accounted for 14.6 percent, and the fishing industry accounted for 14. percent.

A proper combination of farming, forestry, and livestock raising is also necessary for the preservation of ecological balance. In the natural world, environment and organisms are natural cause and effect and interdependent. All organisms including crops and other plants, animals, and even mankind can survive and develop in the natural world only under definite conditions of ecological balance. Looked at in terms of environment and organisms, forests have three distinctive functions in the development of agriculture. One is regulation of the macroclimate and improvement of the microclimate. The second is conservation of water resources and water and soil conservation. The third is shelter against wind and the stabilizing of sand to protect farmlands. But in recent years forests have been cut excessively, and now China's forest cover rate amounts to only 12.7 percent of the country's land area. This has caused degeneration of the climate, serious erosion, the southward advance of deserts, and a decrease in rare and valuable birds and animals. This, in turn, has brought serious consequences for the entire national economy.

Taking the forestry industry firmly in hand is a major ingredient in the current readjustment of the national economy. In taking resolute action to protect the existing forests, the quantity of logging done nationally must be stabilized for a time so that overlogged forest areas can regenerate. The shortfall in needed lumber can be solved mainly through development of old forests deep in the mountains and through a major effort to make multiple uses of lumber. Since it is easy to exploit forests but difficult to nurture them, once they have been destroyed, they cannot be restored for several decades. Consequently, protection of the forests and the growing of forests appears to be particularly important and urgent. We must absorb the past lessons of logging without growing, or emphasizing logging while slighting growing, and adhere to the principle of the nurture of forests being dominant and logging being ancillary, so that the gap between quantity logged and quantity grown will be shortened, so that the natural ecology will move toward balance, and so that the forest cover rate of China will gradually increase from 12.7 percent to 20 percent, 30 percent, and higher. This is entirely possible. Before Liberation, Korea's forest resources had been extremely badly damaged, but following Liberation, in order to revive and expand forest resources, a 10 year forest building plan was put forward, and in 1964 all around promotion was given a cyclical logging scheme. Now the forest cover rate stands at 74.4 percent. During World War II, Japan's forests were virtually denuded, and after the war, the mountains were closed in order to nurture the forests, Japan's lumber needs being met principally through imports. Within less than 30 years, the national forest cover rate stood at 66 percent.

In order to increase China's agricultural production rapidly and to solve the problem of serious imbalance of the ratio of forestry in the national economy, we feel it is necessary to take the following major actions.

First, henceforth for a rather long period of time, adherence to continued afforestation. This forms the foundation for agricultural and forestry production. China currently has 1.2 billion mu of barrne mountains suitable for forests, 160 million mu of which belongs to state forest farms, and an overwhelming majority of the rest of which is owned collectively. In addition, since China is a vast land with a massive population, odd bits of land suitable for the growing of trees are numerous in front of and behind houses, and in courtyards and compounds. We must give prime adherence to commune and brigade collective afforestation, actively develop state-owned afforestation, and encourage individual commune members to plant trees, pursuing a policy of what the state plants the state owns, what communes plant communes own, what brigades plant brigades own, what is planted in common is owned in common, and threes planted by commune members in front or behind their homes or in places designated by production teams shall forever be the property of commune members. Only by firming up th ownership rights of forests can the initiative of all quarteer be aroused to plant trees and carry out afforestation.

Second, unswerving implementation of a policy of protection of forestry. Formerly many collective units planted trees every year and did not bother with them thereafter. In the spring an entire mountain might be planted, but by summer only half were still alive, and by the end of fall they had all disappeared. The main reason was that once the trees had been planted, no specific persons were responsible for their care and protection. Therefore, establishment and perfection of various forms of a system of responsibility for forestry is essential.

Third, solution to the conflict between forests and grain and between forests and livestock. In the past some leaders gave attention only to grain without caring about forests, causing serious damage to forests as a result, and inhibiting grain output in turn. Every province, municipality, and autonomous region must act in accordance with its own natural conditions on the principle of forests where forests are suitable, farming where farming is suitable, and livestock raising where livestock raising is suitable, doing all around planning, making unified arrangements, and solving the conflict between forests and grain and between forests and livestock to promote overall development of agriculture, forestry, livestock raising, sideline industries, and fisheries.

Fourth is the strengthening of management with a change in the situation of forestry being administered by more than one authority. In most areas of the country nowadays, forestry products are administered by numerous units. Some are in charge of planting; some are in charge of cutting; some are in charge of the marketing of logs; some are in charge of the processing of lumber; some are in charge of bamboo, some are in charge of the disposition of waste materials; and some are in charge of forestry byproducts such as mushrooms, wood ears, and tea leaves. In consequence, "a single hoe creates a forest but 100 axes chop a tree." In some provinces, municipalities, and autonomous regions, forest products have been returned to the administration of forestry units, which helps strengthen leadership for planning, make unified plans with due consideration for all concerned, and balance supply and demand.

Fifth, vigorous propagandizing and diligent implementation of the "Forest Law" and the State Council's urgent circular on halting reckless logging and the denudation of forests, so that the broad masses of cadre and the people will have an intensified conception of the laws and the consciousness of the masses in forest areas for building forests, loving forests, and protecting forests will be heightened. Political and legal units should closely coordinate to fix responsibility and to punish according to the law those who seriously destroy what has been stipulated in the "Forest Law" and the "Circular."

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BRIEFS

AGRICULTURE TRAINING CLASS--A training class on winter rape production in Hebei, Henan, Shandong, Shanxi, Shaanxi, Gansu and Anhui provinces, sponsored by the Agriculture Ministry, opened at the Fuyang Prefectural Agriculture Bureau in Anhui on 25 April. The class of 80 people will last for about a month. Speaking at the opening ceremony were (Cheng Haibo), director of the provincial agriculture department, and (Zhao Rongqiu), deputy commissioner of the Fuyang Prefectural Administrative Office. The main objective of the class is to further promote the seven provinces' rape production by summing up and exchanging experiences and improving cultivation technique. Before the class opened, the trainees were organized to inspect the rape-producing Jieshou, Funan and Yingshang countries. [OW290008 Hefei Anhui Provincial Service in Mandarin 1100 GMT 26 Apr 81]

STATE FARM EXPORTS--State farms and land reclamation departments in China are making full use of their production capacity to produce export products. In 1980 their exports totaled 3,456 million yuan, 28.94 percent higher than the previous year. [OW280128 Beijing Domestic Service in Mandarin 0400 GMT 26 Apr 81]

FARM IMPLEMENTS--Beijing, 23 Apr (XINHUA)--Demands for medium and small farm implements in China's rural areas have drastically increased following the enforcement of the various forms of the system of production responsibility and the development of diversified economic undertakings. However, because of the "leftist" ideological influence, departments concerned have overemphasized large farm machinery at the expense of medium and small farm implements. As a result, the production of medium and small farm implements has steadily declined and is unable to meet growing demands. The shortage has caught the attention of the State Council and other departments concerned. Measures are being taken to step up production. A recent meeting in Beijing sponsored by the Ministry of Agriculture further studied plans and made arrangement for the production of medium and small farm implements. [OW280128 Beijing XINHUA Domestic Service in Chinese 0731 GMT 23 Apr 81]

CSO: 4007/385

BARRIER DAM SUCCESSFULLY CLOSED TO RECLAIM TIDELAND AREA

Fuzhou FUJIAN RIBAO in Chinese 11 Feb 81 p 1

[Article by Yu Changmu [0151 2490 2606], Tideland Reclamation Section, Water Conservancy Bureau: "Largest Man-Made Plain in East Fujian--Daguanban Tideland Reclamation Closed. Total Area of 42,000 Mu Reclaimed From the Sea Will Become a Base for Grain, Sugar, Hemp, Fruit, and Salt Following Completion of Construction"]

[Text] Fujian Province's largest tideland reclamation project, the Daguanban reclamation in Lianjiang County was triumphantly stoppered and closed in October last year. The more than 5000 meter long dike has now withstood the test of wind and waves for more than 3 months without failing. Provincial water conservancy authorities acknowledge that this reclamation project was one in Fujian Province for which the construction time was short, speed rapid, and quality good.

The Daguanban polder in Lianjiang County was designed by water conservancy project technicians, and work formally began on it in September 1977. The polder area amounts to 42,000 mu, and four-fifths of it can be conditioned and brought under cultivation; the remaining deep harbor and water surface may provide a place for the hatching of fish and shrimp. The total project includes a seawall of 10 sections totaling 5,420 meters in total length and connecting 12 islets. Also constructed were two 65 meter wide sluices with 13 apertures, and a 102 meter wide gate bearing 44 apertures for shunting the current. The seawall was constructed of more than 1.8 million cubic meters of earth and stone, more than twice the amount used in the famous Amoy seawall. The project was large in scale, the length of the dike long, the soft foundation for the footings deep, and construction difficulties great. Once work got under way on the project, with the concern and support of provincial and prefectural leadership organizations and the authorities concerned, Lianjiang County set up a county, commune, and brigade three echelon guidance organization, and transferred it to one County CCP Committee deputy secretary and more than 140 cadres and technicians to be stationed at the worksite to organize and lead construction. They adopted a system of contracting for large segments of work, proportionally distributing the major work on the project of building the seawall and the gates to communes in accordance with design requirements, work forces and cultivated land. They used "three contracts and three fixeds" (contracting for parts of the project at a fixed quality; contracting for a quantity of work on the project using a fixed supply of materials; and contracting for man days of work for a fixed subsidy in grain and money). They also organized construction according to plan, vigorously arousing the enthusiasm of the masses. As construction progressed, leaders from the project headquarters frequently inspected and studied the worksites in the company of project technicians with whom they discussed matters and formulated construction programs. When a difficulty in construction was encountered, leadership cadres would take project technicians to the provincial level to seek advice from experts there. They used the technique of sinking shafts to solve technical problems in construction such as the soft foundation for seawall sections. Before closing the gap in the seawall, the Provincial Department of Water and Electricity invited experts, professors, and engineers from inside and outside the province to go to the worksite to discuss and decide upon a plan for closing the wall. While the gap was being closed, leaders of the project headquarters, project technicians, and representatives of the civilian laborers inspected the site on seven occasions to get a feel for the lay of the land at the fill site, how the current was regulated, and how to act in accordance with the suddenness of change in the speed of the current resulting from a drop in the tide and the peril posed by the topography to adopt prudent and safe ways to deal with the situation. Finally, the more than 10 meter deep and more than 300 meter wide breach was dammed and the seawall successfully closed. This project required a total expenditure of more than 23.7 million yuan of which the state subsidized 15.77 million yuan. Presently communes and brigades who will benefit from the polder are continuing construction to make it airtight and to complete planned construction in an effort to enjoy its benefits at an early date.

Lianjiang County has a large population relative to available land. Cultivated land averages only 0.4 mu per capita. Enclosing the sea to create fields and expand the cultivated land area is a major way by which this country can develop grain production and diversification, and solve its problem of an excess workforce. Following completion of this tideland reclamation project and the building of the polder, 11 communes in Kengyuan and Aojiang on the coastal plain will be able to increase the amount of cultivated land by more than 0.12 mu per capita, and it will become the largest man-made plain and base for grain, sugar, hemp, fish, fruit, and salt in eastern Fujian.

Following the closing of the seawall, the Lianjiang County CCP Committee and the County People's Government invited members of the County People's Political Consultative Conference, and organized more than 2,400 old folks over 60 years of age from more than 50 communes on the coastal plain, to visit the polder in groups. They all praised this project as having been done well, saying it was a fine act done by the CCP and the People's Government to create wealth for countless generations of Lianjiang County's posterity.

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UPGRADING OF CATTLE VIGOROUSLY PURSUED

Provincial Efforts

Guzhou FUJIAN RIBAO in Chinese 25 Feb 81 p 1

[Text] Since the inception of a pilot project in 1979 using frozen pellets of semen from superior breeds of foreign cattle for artificial insemination to improve local cattle breeds, great progress has been made in Fujian Province. Last year, more than 30 counties in the province used the advanced technology breeding of frozen semen to breed more than 15,500 cows, of which more than 8,500 were oxen, more than 1000 were water buffalo, and more than 6,000 were milk cows. The national grain case counties of Nanan and Zhangpu overfulfilled the cattle breed improvement quotas handed down by the Bureau of Animal Husbandry of the Ministry of Agriculture. In Nanan County 161 production brigades in 14 communes have begun cattle improvement work using cold storage semen to breed 2,543 cows, exceeding breeding quotas by 27.2 percent. Recently the county inspected 1,431 of these cows to find a 42.7 percent conception rate, an increase over 1979.

Improvement of cattle breeds is one of the major measures taken to develop the cattle industry in Fujian Province. The superiority of cattle breeds relates directly to production performance and economic value. An overwhelming majority of the cattle fed in Fujian Province today are draft animals, which grow slowly, have small bodies, produce small quantities of beef and milk, have poor strength for work, low production performance, and are even less worthwhile if fed as beef animals. Thus, in order to develop Fujian Province's cattle raising industry, particularly for the production of beef cattle or cattle useful for both their production of meat and milk, it is necessary to gradually improve local cattle varieties. Foreign superior varieties of cattle produce five times as much beef and milk as the oxen of Fujian Province. Simmental cattle, for example, weigh 900 jin at one year of age, and 2,000 jin at 3 years of age. Slaughtered after being fed for a year, they dress at 65 percent for an output of 450 jin of beef. Simmental cattle may be used either for the production of beef or milk, and will produce 8,000 jin of milk per year. Importation of superior foreign cattle breeds for breeding with local cattle can rapidly change the situation of low output from the cattle of Fujian Province.

In order to improve cattle breeds, during the last 2 years Fujian Province has introduced nine breeds including Simmental, Charolais, Santa Gertrudi, Angus, Hereford and Limuzan [0448 2609 6363] [phonetic] cattle, and Mola [2302 2139] [phonetic] and Nili [1441 6849] [phonetic] water buffalo, and Holstein cows. Numerous varieties of bulls have by now gone into production. Last year, the provincial animal husbandry breeding stations produced 98,000 pellets of frozen pellet semen from cattle of various kinds, of which 76,000 pellets of semen were from beef cattle and cattle used for a combination of both beef and milk, and 32,000 pellets were milk cow semen. They also produced 9,000 cubic liters of liquid nitrogen for use in cattle herd improvement everywhere in the province. Preliminary results are already visible as a result of the breed improvement work. Preliminary statistics show the birth of more than 300 hybrid calves in the province of which most are hybrid progeny born of 1979 breedings. Progeny bred last spring and fall will be born this spring. The first crop of hybrid cattle already manifests remarkable superiority. Average weight of calves at birth is about 40 jin, the highest being 52 jin, which is from 8 to 10 jin heavier than the weight at birth of calves from local stock. They also eat more, grow more quickly, and, when fed properly, gain more than a jin a day. Nanan County predicts that its 28 hybrid calves will average 164.5 jin each at age four months. Experience has shown that use of superior varieties of foreign cattle hybrids is a workable way of improving cattle breeds in Fujian Province.

Nanan County

Fuzhou FUJIAN RIBAO in Chinese 25 Feb 81 p 1

[Text] Nanan County, the national production base county for beef cattle, has diligently put into effect policies for the raising of cattle, and the cattle raising industry has continued to develop. Last year oxen in pens throughout the county numbered 50,800 head, a 5.1 percent increase over the previous year. The county has set up 12 cold storage semen breeding sites where frozen semen pellets from superior varieties of foreign bulls is used for the breeding of local oxen. Last year such breeding was done a total of 3,147 times, and the conception rate was better than 43 percent, which greatly advanced development of beef cattle.

Nanan County has more than 390,000 mu of mountainous grasslands of which 120,000 mu is continuous range suitable for cattle raising, where conditions for raising cattle are good and a great potential exists. Following Liberation, along with the development of agricultural production came a gradual rise in cattle raising. But because of the effects of a long period of "leftist" ideology, the cattle raising industry did not develop quickly. Following the Third Plenary Session of the 11th Party Central Committee, County CCP Committees and the County People's Government placed the development of cattle raising on their agendas, giving attention both to government policies and to improvement of cattle varieties to win good results. During the past 3 years, cattle raising has steadily climbed in this county, and last year there were 2.4 percent more cattle on hand throughout the county than in 1977. Cattle being privately raised by commune members numbered 5,300 head the year before last; last year they numbered 8,300 head for a 36 percent increase.

A prominent problem in this county's livestock raising industry has been an increasingly serious regression in its oxen. The traditional breed of local oxen has a small body, produces little meat of poor quality, lacks strength for work and is of low economic effectiveness. In order to change this state of affairs, the county began cattle breed improvement in 1979 in a gradual change away from the local oxen, which have traditionally been used principally as work animals, to animals that can provide beef and milk in order to increase the economic value of the oxen and to assure that both the collective and commune members derive greater benefits from raising cattle. Beginning in the spring of 1979 when a pilot project was set up at the Renfu Production Team in Shuitou Commune, 12 artificial cold storage breeding stations were set up one after another in 11 communes at Shuitou, Guanqiao, Chengguan, and Kangmei. A group of specialists were trained to do the frozen semen breeding work, and in slightly more than two years, frozen semen from Charolais, Hereford, and Simmental breed bulls was used 3,147 times to breed local oxen for a conception rate of 43 percent. In the first year, more than 150 hybrid calves were born, with a birth weight that averaged between 8 and 12 jin more than that of local cattle. Daily weight increase averaged from 0.7 jin to 1.2 jin, and within 18 months the animals weigned between 500 and 600 jin in a universal demonstration of superiority over local cattle, which was heartily welcomed by the masses.

While Nanan was improving cattle breeds, attention was given to carrying out policies for raising cattle. During the past 2 years, the nounty CCP Committee has corrected the "leftist" errors of the past, which long fettered people's hands and feet, abolished numerous "prohibitions" that limited and prohibited development of the cattle raising industry, and encouraged cattle raising by the collective and my individual commune members. Throughout the province appeared a good general atmosphere of raising more cattle is a glorious thing to do, and reliance on the collective to become prosperous is a glorious thing to do. Guanqiao Commune, which raised rather more cattle than elsewhere, showed a 2,898 head increase last year over the previous year in the number of privately raised cattle. The Ninth Production Team of the Dongtou Production Brigade of this commune formerly proscribed commune members from breeding calves, but has now decided that the household that feeds one will receive an award of 50 jin of grain, and 250 jin of sweet potatoes; when the heifer is one year old and returned to the team, 50 percent of the converted price will revert to the commune members. In this way, commune members feel that raising cattle is worthwhile, and they plan to overcome difficulties to raise a cow. Commune member, Chen Zuzheng's [7115 43712973] family has raised 11 head of cattle of which 6 were for the collective, and the other 5 for themselves to become famed as a cattle raising household.

By way of encouraging and supporting the raising of cattle, for the past 2 years the county government, the county agricultural bank, and the civil administrative bureau have made free loans, investments, and support funds available totaling more than 300,000 yuan, and grain units have allocated more than 200,000 jin of concentrated feed, which has played an active role in development of cattle raising throughout the country.

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NEW BREEDING, PLANT, ANIMAL PROTECTION ACHIEVEMENTS IN 1980 REPORTED

Fuzhou FUJIAN RIBAO in Chinese 25 Jan 81 p 1

[Article by Wang Renmo [3769 0086 1075]: "Provincial Academy of Agricultural Sciences Had Several Research Achievements Last Year"]

[Text] Last year, the vast numbers of agricultural scientists and technicians at the Provincial Academy of Agricultural Sciences, acting in accordance with requirements for readjustment of the internal structure of agriculture, concentrated forces to emphasize research on 174 different problems in the breeding of superior crop varieties, compound granular fertilizer, organic nitrogen fixation, citrus huanglongbing [7806 7893 4016], and streptococcus vaccine for swine, making heartening advances. One-hundred forty-two of the problems were completed according to plan and attained the annual quota; those problems partially attaining annual quotas numbered 18.

Last year's major new achievements by the Provincial Academy of Agricultural Sciences were as follows:

(1) Breeding of new varieties of some crops. Superior new varieties of rice, "Mingui No 1," "Kexie No 2," "Mindao 17," and "Zaoyeqing" were found to be excellent as a result of regional testing throughout the province and the country. They are characterized by early ripening, strong resistance to disease, and wide adaptability. Their extent of increase in output averages more than 10 percent. The selectively bred "Mintang 75/270," and "Mintang 69/278" new varieties of sugarcane are characterized by high output or early maturity and high sugar content, and may be supplied for popularization over large areas. Newly bred superior varieties of tea shrubs, "Baiyun No 1," "Fuyun 595," and "Fuyun 591" grow better, are of higher quality, and produce more than Fudingdabai tea. New varieties of fruit trees are "Minjiao 64-1," and "Minjiao 64-2" longan with small pits, and "Banhong" loquats.

(2) In the course of research on azolla, a method was mastered preliminarily for separating and combining duckweeds and algae. Furthermore, the collection of variety resources has increased by 28 over the year before last. From them has been bred a variety of duckweed that tolerates heat, is mildew resistant, has strong nitrogen fixing properties, reproduces quickly, and has high output.

(3) In the realm of plant protection, there was further understanding of the laws governing the origin and movements of brown rice leafhoppers. Selectively bred strains of bacteria "Nongkan 6," and "Nongkang 59" are clearly effective in the prevention of bacterial blight in rice. "Nongkang 6" has a lethal effect on tea leaf cicadas and tea mites. "Nongkang 77" is fairly effective in the prevention of sweet potato blast. Three-hundred forty-nine varieties of natural enemies of insect pests of rice, wheat, tubers, and sugarcane have been collected, and 15 different new natural enemies of insect pests of rice have been discovered. The types of sugarcane scarabs, the laws governing their occurrence and methods for preventing and controlling them have been clarified, and in demonstrations on wide areas in cane regions, they were found very effective.

(4) In the field of animal husbandry research, fairly good results have been obtained from research on a weak vaccine against swine streptococcus, and following simultaneous appraisal throughout the country, it may be supplied for use in production. In the formulation of feed for slaughter hogs, a quite ideal formula has been found. Research into the pathogenesis and control of infectious bloody dysentery in cows has found the principal pathogenesis to be niulunzhuang [3662 6544 3692] virus. This has provided important data for research in epidemiology and prevention. Success was achieved with geothermal hatching and geothermal brooding.

Additionally, progress was made in research on soil fertility, hybrid rice, farm machines, surveys of agricultural resources and agricultural zoning.

The agricultural research planning conference recently convened by the Provincial Academy of Agricultural Sciences and attended by delegates from agricultural institutes in all prefectures and municipalities summarized and exchanged last year's experiences in research work. It also set forth this year's agricultural research plans. The conference acknowledged that this year Fujian Province's agricultural research has to overcome the problems of dispersal of forces and the large number of questions for research, applying its forces at crucial points where they can do most good to solve some of the major problems urgently awaiting solution in agricultural production in the province in a focusing of research topics. There is need for serious attention to and intensified promotion in use of advanced research achievements. There is need for continued implementation of policies pertaining to scientists and technicians with improvements in their working conditions and their remuneration. There is need to arouse all active elements under the leadership of the party to use every manner of means to carry forward agricultural research work in Fujian Province.

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SERICULTURE LOOKS PROMISING IN GUANGDONG

Guangzhou XUESHU YANJIU [ACADEMIC RESEARCH] in Chinese No 6, 1980 pp 18-21

[Article: "Use Advantages; Actively Develop Guangdong Province's Silkworm Mulberry Industry"]

[Excerpts] Guangdong Province is possessed of advantageous conditions for development of the silkworm mulberry industry. Survey shows it is entirely possible for us to bring about a vast increase in the silkworm mulberry industry of the province as part of the promotion of development of overall economic construction.

Advantages Here Particularly Good

Guangdong Province is the source of the silkworm mulberry industry. Most places in the country can grow mulberry and raise silkworms, but in comparison with other provinces and regions, Guangdong Province has numerous especially superior places.

First of all, Guangdong Province has climatic conditions most suited to growth of mulberry trees. In order to grow silkworms, sufficient mulberry leaves are required. Mulberry trees are a crop that like moisture and like warmth. Guangdong is located in the tropics and semi-tropics where the climate is temperate, rains copious, the frost-free period long, and sunlight hours long. Under these ecological conditions, the dormancy period for mulberry trees is very short, and one might say that mulberry leaves may be grown all year round. In addition, Guangdong Province's mulberry trees are bush mulberry with prolific branches and abundant leaves. Average output of mulberry in the province exceeds 3000 jin per mu, far higher than in other provinces. Given extra care, yields of between 5000 and 6000 jin per mu of mulberry are not difficult, and they can go as high as 10,000 jin. Since mulberry leaves are numerous and the severely cold period short, seven or eight crops of silkworms may be raised each year. Temperatures in Zhanjiang Prefecture average two degrees higher than for other prefectures, and the season for growing mulberry is longer, so as many as nine crops of silkworms may be grown annually. This is something other provinces and regions cannot match. Most provinces can raise only four crops of silkworms annually, less by half.

Second, Guangdong Province has already set up a mulberry pool area consisting of places highly specialized in silkworm mulberry production. This pool area includes some major production communes in Shunde, Nanhai, and Zhongshan counties. Silkworm mulberry is a growing and breeding industry requiring a fair amount of skill, and as a result of their long time involvement in silkworm mulberry, pondfish, sugarcane and such crops, the peasants in the aforementioned areas have accumulated abundant experience in production, and communes and brigades have formed a workable and effective system of management. In these areas, mulberry groves stretch along one after another. The three counties have more than 140,000 mu of mulberry groves in which production is concentrated. They have created a growing method of cyclical production of fishponds dependent on mulberry, i.e., mulberry leaves nurture silkworms, and silkworm excrement and silkworm chrysalises are used as food for pondfish; pond mud is used as fertilizer for mulberry trees, sugarcane, or other crops. In this way, the growing of mulberry, the raising of silkworms, the growing of sugarcane, and the raising of fish are all mutually supportive with bumper output from all. In 1978, Shunde County's output of cocoons averaged 320 jin per mu of mulberry, 80 jin higher than the average for the province, and three times higher than the Japanese 77.7 jin of cocoons per mu of mulberry. These mulberry pool areas serve a major exemplary and guiding role in giving impetus to the development of silkworm mulberry production in Guangdong Province.

Third, the results of silkworm mulberry research and technological innovation in Guangdong Province have provided extraordinarily beneficial conditions for the development of silkworm mulberry production in the province. Guangdong Province's silkworm mulberry industry research and teaching organizations have scored great successes over the years in the breeding and promotion of superior varieties of silkworm mulberry, in improving methods for growing mulberry and raising silkworms, and in the prevention and control of silkworm diseases, which has powerfully helped increase the labor productivity rate in the mulberry silkworm industry. An example is an almost two-fold increase over the period immediately following Liberation in the output per mu of mulberry in the province. Output of cocoons increased from 45.82 jin per mu of mulberry in 1949 to 243 jin per mu of mulberry in 1978, three times the national average output of cocoons per mu of mulberry. Development of science and technology has made Guangdong's advantages in silkworm mulberry production like a tiger that has sprouted wings.

Nevertheless, Guangdong Province's silkworm mulberry industry advantages have not been used to the full for a long period of time. Progress in silkworm mulberry production has come about slowly. Even during the great bumper harvest year for silkworm cocoons nationally in 1979, Guangdong Province's output of silkworm cocoons experienced a decline, falling from 450,000 dan in 1978 to 390,000 dan. Total output of silkworm cocoons for Guangdong was less than Sichuan Province's increase in output for the same period (400,000 dan). This truly makes one feel sad.

The silkworm excrement and chrysalises derived from the raising of silkworms is both a superior organic fertilizer and a premium food for pondfish. In mulberry pool areas, the silkworm excrement and the chrysalises are used primarily as food for pondfish. The silkworm excrement and chyrsalises obtained from the production of one dan of cocoons can, when used to feed fish, produce an increase in output of 75 jin of fish. If Guangdong's silkworm cocoon output totals 1 million dan, and all of the food thus derived is used to feed fish, a 450,000 dan increase in output of pondfish will result. Fishponds used for raising fish contain large quantities of pond mud plus large quantities of mulberry leaf leftovers and silkworm excrement, all of which make very good organic fertilizer and are very beneficial in improving soil fertility, and in promoting the growth of silkworm mulberry, sugarcane, and grain. If Guangdong Province's cocoon output amounts to 1 million dan, the silkworm farmers in the province will have on hand 75,000 tons of organic fertilizer, which can give major stimulus to the all-around development of agricultural by-products.

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FARM INDUSTRIES PROGRESS IN MIDST OF READJUSTMENT

Guangzhou NANFANG RIBAO in Chinese 25 Feb 81 p 2

[Article: "Farm Industries Subordinate to Guangzhou Municipality Progress in the Midst of Readjustment"]

[Excerpt] Last year, both output value and profits from industries operated by farms subordinate to Guangzhou municipality showed substantial increases. Last year, output value totaled 69.95 million yuan, a 30.8 percent increase over 1979. Profits totaled 7.5 million yuan, a 45.6 percent increase over 1979.

Formerly output value of farm machinery plants of farms subordinate to the municipality amounted to half the output value of all farm operated industries. Following the 1978 Central Committee decision to institute a policy of readjustment in the national economy and a great decline in farm machinery output quotas, quite a few of the farm machinery plants of farms subordinate to Guangzhou municipality became "spent ember" plants, and some of them could not even pay wages. While repeatedly studying how to adhere to the Central Committee's readjustment policies, each farm resolutely closed, stopped production in, combined, or converted plants, and decided to seek a way out through conversion. Within slightly more than a year, eight farm machinery plants stopped production, while another six converted production, thereby turning around a passive situation. The Baiyun Integrated Company's spare parts plant had formerly produced mostly farm machinery spare parts, but in 1979 its production quotas became only one-fourth what they had formerly been. Last year, this plant withdrew from the production of spare parts for farm machinery, converting production to steel windows urgently needed in civilian construction. Profits reached 1.02 million yuan, a 400 percent increase over 1979. In the process of readjusting industries run by farms subordinate to the municipality, attention was directed to gaining a solid source of capital and equipment, and not competing with the state for raw materials. After more than a year of readjustment, numerous changes took place in the industrial structure. In 1978, output value of machine processing and manufacturing industries stood at 51 percent, but declined last year to 36 percent, while light industry and food industry output value rose to 64 percent.

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GUANGDONG

PAST EXPERIENCE WITH, PREVENTION OF ROTTEN SEEDLINGS DISCUSSED

Guangzhou NANFANG RIBAO in Chinese 5 Mar 81 p 2

[Article by Grain Production Section, Provincial Department of Agriculture: "Attention to Changes in Weather to Reduce Damage from Rotten Seedlings"]

[Text] Since last fall the entire province has had a drought and temperatures have been high. Right up into early and mid-February, Guangzhou's daily temperatures have averaged higher than 14°C. Around 25 February, cold northern air moved southward and temperatures suddenly dropped. In late February they fell from between 17 to 21°C to 11.9°C, and on the 26th, they again fell to 8.6°C bringing a light rain with them. Though this rainfall has helped spring plowing and spring planting, it has exacerbated difficulties in the raising of seedlings.

During the past 30 years, low temperatures or low temperatures and overcast rainy weather have appeared off and on in late February or early March. Statistics for the 29 year period from 1951 to 1979 show the appearance of such a condition in 19 years. In 3 years, the period was short (1960, 1963, and 1966). In 5 years, the period was long lasting for more than 10 days (1951, 1964, 1967, 1968, and 1969). Longest was 1968, when it lasted for 18 days. Though there were only 7 days of low temperatures and rainy overcast days between late February and early March 1978, between 19 and 24 March, temperatures suddenly plummeted to below 10°C, and the number of rotten seedlings and dead plants were large. In that year, 270 million jin of grain seeds that had been sown in the spring were lost. In addition, the "return to cold in spring" killed about 100 million jin of grain seeds. In most years, it causes the loss of between 50 and 60 million jin; and in years of light loss, the amount is between 30 and 40 million jin.

Though there are numerous reasons for the rotting of seedlings for which seeds were sown in the spring, yet in a major sense the main reason for the rotting of seedlings is bad weather. Specifically it is caused by the action of cold air, which produces low temperatures, rainy overcast weather, or dry cold, or in some areas the occurrence of frost or hailstones. In bad weather, the growth of seedlings becomes abnormal, and diseases take the opportunity to invade, creating rotten shoots and dead seedlings. Otherwise, it is the result of poor care with improper application of fertilizer, or poisoning from long stagnation in water. It can also result from sudden changes in temperature such as a sudden increase in temperatures following a long period of low temperatures, or dry winds that bring on physiological loss of water and death of seedlings. Ordinarily then daily temperatures average less than 10°C or above 5°C for a period of from 3 to 5 days, and are followed by a sudden rise in temperature, seedlings may die. Therefore, one very important particular in achieving no rotting of seedlings or less rotting of seedlings is mastery of the climatic laws, taking full note of the season, and sowing at the proper times. Additionally the use of corresponding measures to prepare the seedling fields, creating seedling fields with a proper amount of water, fertility, air and heat, plus proper care in watering and fertilizing can attain the goal of no rotting of seedlings.

Seedling rot during the past 10 years or more has resulted in most years, from blind early sowing. In recent years, things have been better as plastic sheeting has been used to cover the ground for early plantings in central and northern prefectures. Nevertheless, with or without plastic sheeting, and whether or not seeds have been soaked to stimulate sprouting, attention still has to be given to better care in order to prevent or reduce seedling rot.

Seedlings grown under plastic sheets. When seedlings are grown under plastic sheeting, the sheeting must be examined often to determine whether it has been blown loose or torn by the wind, in which cases it must be promptly put back in place and fastened down. Once the seedlings have entered the respiration stage, when the air turns warm after a cold spell, the seed beds may be opened at one end or the other to allow air to circulate, and then be tightly reclosed at night. The plastic sheeting should not be removed while the seedlings are in the three leaf stage until the return of warm weather and after temperatures have more or less stabilized. Then the sheeting may be removed to toughen the seedlings.

Seedlings grown in open fields. After sowing and before the seedlings have turned green, all water must be drained away during chilly and overcast or rainy weather. According to experiments performed by the Provincial Academy of Agriculture, 34.2 percent of irrigated seedling sprouts rot, while those kept moist have only 6.5 percent rot. Up until the time that the seedlings have two leaves, it is best simply to keep them moist. After the three leaf stage, a thin layer of water may be maintained on the seedbed, but care must be taken to change the water so that it does not stagnate. After cold weather has passed, the water should be drained away gradually. It should not be drained dry abruptly, otherwise the water content of the seedlings will be thown out of kilter, increasing the number of dead seedlings. During cold spells, nitrogenous fertilizer should not be applied to any seedling field. When conditions permit, burned earth or dry ox dung may be applied during the sprouting period, or when the seedlings have a single leaf. This is helpful in warding off cold and preserving warmth. In order to prevent mianfu disease [4875 5201 4016], a 2000 to 5000 part copper culfate solution may be applied. Additionally, Qujiang County experiments show that dikesong [2420 0344 2646] pesticide will kill or control mianfu disease bacteria and bacteria that cause rotting and mildewing, reducing the rotting of seedlings. Concentration to be used for preventive purposes in 700 parts; for urgent rescue, the concentration is between 300 and 400 parts. After covering the sprouts, 6 shiliang of pesticide in 100 parts of water per mu may be used for spraying. Before using the pesticide, accumulated water must be drained from the seedling field, and irrigation should not be done for 2 days after application. This pesticide is affected by the direct rays of the sun, so it should be used only after 4 or 5 o'clock on clear days.

Seeds that have been stimulated to sprout but have not yet been sown may be spread out, and with proper care they may be kept for about 10 days. Once a cold spell has passed, they may be rush sown. Generally speaking, supplementary sowing should not use late ripening varieties. Medium ripening varieties are best so that the timing for the late crop will not be impaired causing further losses.

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FOSHAN PREFECTURE SPRING FARMING

Guangzhou NANFANG RIBAO in Chinese 28 Feb 81 p 1

[Article: "Supply and Marketing Cooperatives Will Place Support to Agriculture in First Place; All Echelons of Foshan Prefecture Supply and Marketing Cooperatives Energetically Take in Hand the Task of Supporting Spring Plowing"]

[Excerpts] Between last November and January this year, 120,000 tons of fertilizer were sent to production teams throughout Foshan Prefecture to provide the 4.5 million mu of early crop ricefields throughout the prefecture with 53 jin per mu of chemical fertilizer. Transportation and storage of fertilizer is still underway and it is planned that by the beginning of spring plowing, the total amount stored will be more than 158,000 tons, or 70 jin per mu of ricefields. In order to supply plastic sheeting for the propagation of seedlings, of which only a small amount is on hand, in view of inadequate distribution under the state plan, each supply and marketing cooperative will use various means for the dispatch of personnel to places inside and outside the province to buy plastic sheeting for use in agriculture outside of plan. The 1,775 tons of plastic sheeting for agricultural use that has already been supplied to communes and brigades will suffice the needs for propagation of seedlings for the early crop. All echelons of supply and marketing cooperatives are actively assembling seedlings, seeds, and medium and small farm implements. As of the end of January, they had assembled 5.65 million medium and small farm tools, 15,000 tons of pesticide, 65,136 farming devices and machiners, and more than 30,000 dan of melon and vegetable seeds. More than 900,000 items of fruit nursery stock had been grown and were awaiting removal from nurseries for planting.

They have given great attention to purchase from the markets and promotion of the sale of large quantities of agricultural byproducts harvested in the winter and early part of this year in order to increase funds available to communes, brigades, and commune members for spring plowing. Along with arrangements for the export and sales within the prefecture of vegetables, they have organized the integrated prefecture, municipal, and county transportation to the north of winter-grown vegetables. Between November last year and the lunar new year this year, the prefecture has sent northward more than 47,400 dan of vegetables. Supply and marketing cooperatives in the prefecture and in major producing counties have set up separate temporary leadership organizations for the export of cassava in order to strengthen leadership in purchases from the market and export of cassava. Since last October, 9,680 tons of dried cassava slices have been purchased throughout the prefecture, and 4,735 tons have been supplied for export. Supply and marketing units have guaranteed purchase and the promotion of sales of various animal byproduct staples going to market to increase the income of the collective and of commune members.

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BREAKING OF PROMISES BREEDS DISTRUST

Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12, 5 Dec 80 p 29

[Article by Wang Shiting [3769 0013 0255], Liufuqing Commune, Nanpi County, Hebei, and Zhao Yongsheng [6392 3057 3932], News Unit, Nanpi County CCP Committee, Hebei: "When Superiors Go Back on Their Word, Subordinates Have No Way to Cope"]

[Text] Comrade Editor:

This year we have a good harvest from our cotton here, and it was a happy event worth celebrating. But lately higher authority has handed us a tough problem that we are unable to square with the masses. It is truly a case of too much happiness bringing difficulties.

This spring the cotton planting quota given us by the County Revolutionary Committee at the county four echelon cadre conference was 6,300 mu. It was stipulated that the base figure beyond which an additional price would be paid was to be 15.5 jin per mu, and that the total base figure for which an increased price would be paid was to be 97,650 jin. It was further stipulated that sales to the state of ginned cotton in excess of the base figure would fetch a 30 percent premium price, and that for every excess jin of cotton sold to the state, award sales of two jin of grain would be made. They also signed a contract with us for purchase of a fixed quota and providing for an additional price for cotton in excess of the base figure that included rewards and penalties. Our commune also signed contracts with each production brigade, and production brigades signed contracts with production teams, and production teams with commune members. All the contracts had the same provisions and were signed with personal marks in certification. Soon cotton picking and sales to the state will be finished, but the superiors have gone back on their word, all of a sudden increasing the base figure for payment of an increased price to 113,200 jin, and increasing to 17.98 jin per mu the base figure for an increased price per mu. In so doing, they have:

First, seriously damaged the prestige of the party. In the spring, the county, the commune, the brigades, and individual commune members signed production contracts. In the contracts, the quotas for guaranteed output, the base figure for payment of increased price, and the method of rewards and penalties were all written very clearly, and emphasis was given to doing things strictly in accordance with the contracts. Now, in a sudden breaking of the agreement, the contracts are entirely invalid and the masses say we do not act like communists, that we don't mean what we say, and that we don't keep our word.

Second, the problem is not only that this year our commune is short of grain and short of cash; what is important is the bearing on next year Next year if contracts are signed again, encouragements offered, and the system of responsibility strengthened, will the commune members believe them; will they work; and how will next year's cotton output be developed?

Third, our county has always had five communes who planted cotton, but this year the County CCP Committee did not set forth any quotas, and now it has added the quotas of these several communes to our commune and to several brother cotton growing communes. Is this higher authority acting in accordance with policies or is it just talking without thinking with everything that comes out of their mouths becoming policy? We do not know why this is.

Fourth, work cannot be done, much less can the confidence of the people be gained. All our work requires belief in and reliance on the people for it to succeed. If the people do not believe us, and if when we speak the people do not believe what we say, our direction will come to nothing. We will not have the support of the people, and then how will production develop? How can the subordinate party organization get on with its work?

Fifth, with regard to the base figures handed down on this occasion, the County CCP Committee has notified that it wants to place entirely on production teams the individually assigned base figures, and that there can be no reduction of them or no fabricating them. Any echelon that fabricates them will bear responsibility for it. We simply cannot accept the spirit of such a notification, and having discussed it, we can find no way to pass it on to the production teams, because we cannot give the production teams any reason for the unreasonable increase in the base figure beyond which price increases will be paid. It is truly a case of "when superiors go back on their word; subordinates have no way to cope."

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HEILONGJIANG

BRIEFS

TOBACCO PRODUCTION--Harbin, 27 Apr (XINHUA)--Heilongjiang this year has shipped out 90,000 dan of cured tobacco to cigarette plants in Hebei, Shanxi and Shandong provinces and Tianjin Municipality. Registering an output of 400,000 dan of cured tobacco last year, this province has doubled its tobacco acreage to 240,000 mu. Since the contract system was in effect between supply and marketing cooperatives and production teams, Heilongjiang's tobacco output has increased and tobacco quality much improved. [OW280033 Beijing XINHUA Domestic Service in Chinese 0721 GMT 27 Apr 81]

WHEAT SOWING--Heilingjiang Province has fulfilled 80 percent of the wheat sowing task. According to statistics compiled by 23 April, some 24 million mu of wheat had been sown, 3 million mu more than in the corresponding 1980 period. Some 34 counties and cities and 43 state farms have fulfilled the wheat sowing task. Taking advantage of the recent good weather, waterlogged central areas including Mudanjiang and Hejiang prefectures have sown 700,000 mu per day, speeding up the sowing operation. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 25 Apr 81 SK]

RURAL AFFORESTATION--Thanks to the successful enforcement of rewarding system, rural areas throughout Heilongjiang Province have planted trees over 450,000 mu of land. They have planted 370,000 trees on the fringes of villages and by the side of roads, lakes, ponds and houses. [SK241101 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 23 Apr 81]

LOANS FOR WINEMAKING--Heilongjiang Province has decided to allocate 40 million yuan of loans and an additional 100 million jin of grain to produce more beer and white wine. The provincial government allocated 29 million yuan of loans to develop the wine-making industry in 1980. The combined amount of the province's loans for the wine-making industry for 1980 and 1981 was 50 percent of the total for the 30 years since PRC's founding. In 1980 the province produced 112,000 tons of beer, 34 percent more than in 1979, and 110,000 tons of white wine, 21.8 percent more than in 1979. The province's 1980 beer and white wine output ranked first and fourth, respectively, in the country. [SK231000 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 22 Apr 81]

WATERLOGGING--Some 20 million mu of land in eastern Heilongjiang is waterlogged due to last year's autumn rainfalls and winter snows. The condition of some 10 million mu of land is seriously affecting spring farming this year. [SK201327 Harbin Heilongjiang Provincial Service in Mandarin 1100 19 Apr 81]

SMALL ENTERPRISES--The output value of commune-and brigade-run enterprises in Heilongjiang Province reached 1.48 billion yuan in 1980, a 12.1 percent increase over the 1979 figure. There are 217 flax processing plants owned by communes and brigades. Their processing capacity is 20,000 tons. In 1980 they produced 12,000 tons of flax fiber. There are 320 starch plants with a potato processing capacity of 200,000 tons. Gravel and red bricks produced by commune-and brigade-run enterprises account for 80 to 60 percent, respectively, of the province's total output. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 25 Apr 81 SK]

WATERLOGGING PRIORITY--Experts attending the farmland water conservancy forum recently sponsored by the Heilongjiang Provincial Water Conservancy Association suggested that priority should be given to eliminating waterlogging instead of combating drought in the Sanjiang Plain, Heilongjiang Province. They said: The Sanjiang Plain has 50 million mu of cultivated lands and 10 million mu of wastelands which can be converted into farmland. However, because of an energy shortage, we should strive to raise per-mu yield output and improve existing farmlands to resist natural disasters instead of concentrating on reclaiming wastelands. We should build reservoirs which can produce electricity and irrigate farmlands. [SK260815 Harbin Heilongjinag Provincial Service in Mandarin 1100 GMT 25 Apr 81]

FIRE PREVENTION--The Heilongjiang Provincial People's Government recently issued an emergency circular calling on forestry areas throughout the province to close and cordon off hillsides from 25 April to 25 May in order to prevent fires. The circular stipulates that during the period all thoroughfares to mountains should be strictly controlled. No one is allowed to enter without permission. All vehicles used in forestry areas should be equipped with fire prevention equiopment. The circular also urges people's governments at all levels in forestry areas to conscientiously implement this circular and strengthen leadership over this work to achieve success in fire prevention and forest protection. [SK201015 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 29 Apr 81] In Harbin, Qiqihar, Daqing and Nenjiang municipalities and prefectures, Heilongjiang, 22 fires broke out on 23 April because of gales. Only four fires resulted in damages. According to weather forecasts, gales will be comparatively frequent and will last longer in May [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 24 Apr 81 SK]

SEED GROWING AREA EXPANDED--For the past 2 years, Heilongjiang Province has diligently worked at the "four -izations and one supply" with regard to seeds. It has set up superior variety bases at which it has preliminarily instituted specialization in the propagation of superior varieties, regionalization in the distribution of varieties, mechanization of seed processing, standardization of seed quality, and county organization of unified supply of seeds. This has gradually changed the situation of numerous, complicated, chaotic, and late in crop varieties. In 1979, the area of early ripening high output superior varieties totaled 48.39 million mu or 57 percent of the area sown by rural communes. This year, it totaled 56.74 million mu or 70 percent. This played a definite role in stabilizing and increasing grain output throughout the province. In giving attention to unified supply of seeds, we have taken in hand four basic proposals with regard to the "four -ization" of seeds. [Excerpt] [Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12, 5 Dec 80 p 18] 9432

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POTENTIAL OF CORN, RICE ROTATION EVALUATED

Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCES] in Chinese No 2, Feb 81 pp 14-15

[Article by Hu Gang [5170 0474], Corn Laboratory, Grain Crop Institute, Hubei Provincial Academy of Agricultural Sciences: "Rotation of Corn and Rice Has Bright Prospects"]

[Text] Substantial development in agricultural production has occurred in Hubei Province since the 1950's when vigorous development of the double cropping of rice in a system of green manure- rice - rice - began to be promoted. However, as a result of the use of two crops of rice in a three crop system of green manure and two winter rice crops, which has meant innundation of the soil for long periods of time with no opportunity for sunning and aerating the soil, destroying the soil structure. Not only has the cultivated layer become leathery, its cultivatability bad, its porosity poor, and its characteristics deteriorated, but soil fertility has declined, infestation of diseases, insects, and weeds have become serious, and the investment of labor and funds required for production have increased, adversely affecting continued increases in grain output.

In order to solve these problems, in 1980 we rotated the growing of corn and rice, a dryland and a wetland crop, at Wujiashan Farm on the eastern shore of Xi Hu and at the Xin-andu Farm Experimental Station. This rotational cropping was clearly effective in increasing output of grain (or fodder), in increasing soil fertility, in decreasing disease, insect pests, and weeds, in increasing ability to combat disasters, in saving manpower and capital required for production, and in increasing earnings. Consequently, it was greatly welcomed by the masses.

1. The Superiority of Rotational Cropping of Corn and Rice

1. Rotational cropping of corn and rice can increase total annual grain output. Results of corn and rice rotational cropping experiments conducted in 1980 at eastern Xi Hu showed the following: Corn hybrid Changai (Changmen-721 X Aiguang$_{10}$) was sown on 27 March and became ripe on 13 July after a total growth period of 107 days, which was from 3 to 5 days earlier than early crop early maturing rice variety Erjiuqing. The corn was harvested on 16 July and yields averaged 612.8 jin per mu (which converts to 851.8 jin of paddy). Following harvesting, the cornstalks were cut and plowed under, and on 25 and 26 July hybrid rice varieties Shanyou No 2 and Siyou No 2 were planted. On 26 October, the rice was harvested

with yields averaging 526.7 jin per mu. Output from the corn and rice crops totaled 1378.5 jin per mu. Results of the experiment showed that with proper pairing of corn and rice varieties, it is entirely possible to get yields of from 1,400 to 1,600 jin per mu from the rotational cropping of corn and rice.

2. Development of corn and rice rotational cropping is a new way to use the soil and nurture the soil. At the Xin-andu Farm Experimental Station, testing of cornstalk samples on the day before the corn was harvested showed their fresh weight to be 5,492 jin per mu, which converts to a dry weight (stoved weight) of 1,248 jin. When the stalks were plowed under to serve as base fertilizer for the rice, the rice plants exhibited dark green leaf color, vigorous growth, a high tillering rate, and reserves of strength in the early stages, demonstrating the good effect of the cornstalks when used as green manure.

Rotational cropping of corn and rice can also improve the chemical and physical properties of the soil. As a result of the change back and forth from wet farming to dry farming, the soil's ventilation properties improved, and its ability to retain water increased. Measurements taken by the Zhangdu Hu Farm showed soil that had been changed from wetland crops to dryland ones had a unit weight of 1.108 grams per cubic centimeter and a porosity rate of 15.5 percent, while soil that had been changed from the growing of dryland crops to wetland ones had a unit weight of 1.324 grams per cubic centimeter and a porosity rate of 50.1 percent. This was a 7.54 percent smaller unit weight and an 8.9 percent higher porosity rate than for soil continuously planted to dryland crops. The quantity of water retained in fields continuously cropped with wetland crops was 720 jin per cubic meter while it was 860 jin per cubic meter in dry fields that had been rotated to wetland crops, a 19.4 percent higher quantity of water being retained than in continuously dropped paddy fields. In addition, when corn and rice are rotationally cropped, after the rice has been harvested, the soil may be deeply plowed and allowed to freeze to speed aeration to bring out the latent fertility of the soil. Therefore, rotational cropping of corn and rice is a good way to use the soil while nurturing it at the same time.

Rotational cropping of corn and rice also staggers peak farm work periods, and surmounts the passive situations of being unable to plant and tend crops at the proper time, thus botching the farming season. Formerly, with the one-crop farming of green manure-rice-rice, or rape-rice-rice, the area planted to early crop rice was large, farm work concentrated, and labor in short supply. Transplanting of early crop rice seedlings in mid-May was one of the reasons for output from the early crop not being high. In the rotational cropping of corn and rice, the area planted to early rice has correspondingly shrunk. Planted in mid to late March, the corn is hoed in mid-April, and by then top dressings of fertilizer are virtually complete. Efforts can then be concentrated to the rush transplanting of early rice. This greatly eases the competition for water, fertilizer, and labor during the period of rice transplanting, turning a passive situation into an active one, and creating conditions for high output from the early rice crop.

4. Reduction in weeds and disease and insect infestations. Wetland weeds differ from dryland weeds in their ecological habits and characteristics and in their capacities to adapt. Changes in ecological conditions for weeds resulting from the change from wet fields to dry fields for rotational cropping of rice and corn makes it difficult for weeds to live, and thus is beneficial in the eradication of

weeds for an increase in the utilization rate of fertilizer. Return to the fields of stalks and stems in rotational cropping of corn and rice creates very good soil conditions for the growth and development of the crops, increasing the capacity of the crops to resist diseases and insect pests. In addition, as a result of rotational cropping of corn and rice with the soil being baked in autumn and frozen in winter, the environment for the propagation of diseases and insect pests is destroyed and their death rate is very high. A survey conducted in 1980 at the Xin-andu Farm Experimental Station in eastern Xi Hu showed that when corn and rice were rotationally cropped, no large spot [1129 2432 4016] or sheath and culm blight of rice was found, and the incidence of small spot [1420 2432 4016] was very light (0-0.5 grade). The numbers of corn borers, cutworms, and rice stem borers also showed striking decline as compared to the continuous cropping of two rice crops.

5. Rotational cropping of corn and rice requires less investment and brings higher profits than the continuous cropping of rice. Experiments with the rotational cropping of corn and rice conducted at the Xin-andu Farm Experimental Station in eastern Xi Hu showed fewer workers and less investment was needed for the continuous cropping system of green manure-rice-rice, and that profits were 69.3 percent higher. (See Table 1 on next page)

2. Principal Measures for Growing Corn and Rice in Rotation

Rotational cropping of corn and rice, no matter the characteristics of different varieties or the conditions of farming, is different than continuous cropping. We believe that in order to get high output from corn and rice, attention must be given the following points:

1. Select early maturing, high yield hybrid varieties for both crops. The hybrid corn should be one that will tolerate low temperatures during the seedling stage, and will come into milk and mature rapidly. High yield hybrid varieties that will ripen before 15 July include Changai and Xiaohuang-20-211 x Changmen-721. The rice selected for use as the second crop should have a long growth period, high output, and tolerance for low temperatures during the late stage of growth, or be a hybrid rice such as Siyou No 2.

2. Timely deep plowing and exposing the fields to freezing; clearing of ditches and the sides of fields. After the late crop of rice has been harvested, the fields should be plowed to a depth of 6 to 8 cun and exposed to freezing. Before the lunar New Year, the "three ditches" should be opened so as to drain away water. Ditches surrounding the fields should be about 1.2 chi deep; ditches cutting across fields should be 1 chi deep; and ditches along the sides of the fields should be 8 cun wide. The fields should be carefully prepared so they are level and the soil fine.

3. Sowing at a suitably early time with reasonably close planting. Rice may be sown in mid to late March so that it will ripen before 12 July. Density requirement is 4,000 to 4,500 plants per mu. Rice planted as the second crop should be rush transplanted before 20 July in 4 x 6 cun patterns for a density of 25,000 clumps per mu.

Table 1. Comparison of Profit from Rotational Cropping of Corn and Rice and From Continuous Cropping of Rice

		Labor Investment		Capital Investment (Yuan per Mu)						
Farming System	Total Income Yuan/Mu	Workers Per Mu	Money Yuan Per Mu	Seeds	Fertilizer	Water Pumping	Other	Total Investment (Yuan/Mu)	Net Income (Yuan/Mu)	Profit Rate (%)
Corn-Rice	133.15	23.9	23.90	7.28	23.90	5.00	6.20	66.28	66.87	100.9
Green Manure-Rice-Rice	135.24	32.2	32.20	8.80	25.50	9.00	27.20	102.70	32.54	31.6

Note: Each worker directly calculated at 1.00 yuan. Other investments of capital include purchase of insecticide and pesticides, and plastic sheeting for the propagation of rice seedlings.

4. Increased applications of fertilizer with early follow up application of fertilizer. In the rotational cropping of corn and rice, since the growing period for corn is short, the basic fertility of the soil should be properly increased with an additional early application of fertilizer during the seedling stage, and another during the heading stage. The fields should also be well tended. The base fertilizer for corn is usually 30 kilograms of ammonium hydrogencarbonate. After the cornstalks have been plowed under, fertility is sufficient. For the rice crop that follows, fertilizer should be applied heavily in the early stages and lightly later on; otherwise, it will lack greenness, which will delay ripening and impair output.

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BRIEFS

SEED PROBLEMS--Yesterday the Provincial Bureau of Agriculture sent a letter to the editorial department of this newspaper recommending that every jurisdiction take energetic action to help spring sowing and production move along without a hitch. According to meteorological forecasts, this spring the days when average temperatures throughout the province will exceed 12 degrees will occur in late March, and between early April and early May. Overcast and rainy days will be numerous throughout the province. Last year Hubei Province sustained serious disasters from floods, and not only was there a big job involved in redistributing rice and cotton seeds from places that had a surplus to places that had a shortage, but quality was poor as well. In order to win an all around victory in spring sowing and production this year, the letter proposed that every jurisdiction check the varieties, quantity, quality, moisture content, storage, and the situation of surplus and shortage of seeds to be sown this spring to insure that the quantity of seeds is sufficient and quality good. A combination of seedlings grown under plastic sheeting, seedlings grown in hothouses, and seedlings grown in open fields is an effective way to triumph over loss of seeds and rotting of seedlings for the early rice crop caused by overcast and rainy spring weather and low temperatures. In places where conditions permit, insofar as possible, more seedlings should by grown under plastic sheeting and in hothouses, and more cotton seedlings should be grown in side rooms and under plastic. [Text] [Wuhan HUBEI RIBAO in Chinese 17 Feb 81 p 10] 9432

PEASANTS URGED TOWARD BUMPER HARVEST--Hubei Province is one of the major grain and cotton producing areas of the country. If Hubei Province wins a bumper harvest, it will make a contribution to readjustment of the entire national economy. Additionally, last year Hubei Province sustained serious natural disasters, which reduced output of grain, cotton, and edible oil, and production plans were not fulfilled. The Provincial CCP Committee has asked that this year not only that agricultural production plans be fulfilled, but that efforts also be made to achieve recovery in 1 year from 1 year of disaster. This places even higher demands on this year's agricultural production, and endows a bumper harvest in agriculture this year with increased significance. Rural village cadres on all levels and the broad masses of commune members should intensify their sense of honor and their sense of responsibility for fulfilling this combat task, and shoulder this heavy burden for the welfare of the people of the entire country. To win a bumper harvest in agriculture this year will require, first of all, winning a success with a bumper summer harvest. Because they were sown on time, the more than 20 million mu of summer crops and the more than 4 million mu of rape are now growing well but not evenly enough. In response to the requirement of "recovery in 1 year," fairly great further efforts will be required. Lichun [5 February] has passed and temperatures have begun to rise. Both rape and wheat are about to enter into a period of prolific growth. Every locale must continue to intensify field care, vigorously promote balanced increased output to win a bumper summer harvest, using the summer crop to boost the autumn crop, and exploiting victory to win a bumper harvest for the entire year. [Excerpts] [Wuhan HUBEI RIBAO in Chinese 17 Feb 81 p 1] 9432

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JIANGSU

BRIEFS

FINANCIAL SUPPORT FOR COMMUNE-RUN ENTERPRISES--During the past 2 years, 75 million yuan of local finances in Jiangsu Province has been allocated as support funds for the development of commune and brigade enterprises. Jurisdictions used these funds for more than 2300 projects, 70 percent of which have already been completed one after another and gone into production to begin to provide economic benefits. Xuzhou Prefecture got 13.2 million yuan. In the spirit of reliance on local resources, they made full use of their local resources, mainly for three kinds of projects, namely, development of the construction materials industry including a small cement plant, which will add 300,000 tons to capacity, and development of planting industries and breeding enterprises to serve foreign trade. Each locale also devoted a total of 135,000 mu to the growing of hay, willow, cattails, reeds, and bamboo, and they also operated breeding farms for prawns, mink, and rabbits. They used stalks and stems obtained from farming as raw materials for the development of light industrial manufactures including fiberboard and paper. Projects of this kind in the prefecture totaled 334. Last year, they increased output value by 23.72 million yuan for a net profit of 4.39 million yuan. Huaiyin Prefecture got 16 million yuan in funds, most of which were devoted to the processing of agricultural byproducts and continuous production. Huaian County used the funds to build plants for the processing of down, peppermint oil, cardboard, and rutabagas. They also enlarged several reeling mills. The coastal counties in Nantong and Yancheng prefectures used the funds for the development of commune operated saltworks, building more than 100 salt flats to increase output capacity by almost 100,000 tons. Now earnings exceed the investment. [Text] [Nanjing XINHUA RIBAO in Chinese 10 Jun 80 p 1] 9432

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BRIEFS

AGRICULTURAL MANAGEMENT--Jiangxi Province will soon publish a set of teaching materials for use in training agricultural management cadres. The teaching materials consist of six books, namely, plant and plant physiology, soil and fertilizer, crop heredity and culture, crop cultivation, crop protection and fruit trees planting. Experts, professors and scientists and technicians of the provincial agricultural university and the provincial academy of agricultural science has joined efforts in reviewing and finalizing the materials, which can also serve as self-taught materials for educated youths and reference sources for agrotechnicians. [OW190627 Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 17 Apr 81]

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BRIEFS

OIL-BEARING CROPS--Changling County, an oil-bearing crops base in Jilin Province, has sown 450,000 mu of oil-bearing crops, virtually fulfilling the oil-bearing crops sowing plan. The sown area of white sunflowers accounts for 40 percent of the total sunflower sown area, an increase of 35 percent over 1980. [Changchun Jilin Provincial Service in Mandarin 1100 GMT 30 Apr 81 SK]

SPRING FARMING--In rural areas of Jilin Province, 3.2 million people have begun spring farming. As of 24 April, the province had planted 16.7 million mu of various crops, 3.9 million mu greater than in the corresponding 1980 period. Changchun Municipality has fulfilled 50 percent of its planting work, and Siping Prefecture has planted 3 million mu of crops. [Changchun Jilin Provincial Service in Mandarin 2200 GMT 24 Apri 81 SK]

RURAL INCOME--According to data collected by the provincial statistical bureau, rural areas in Jilin Province recorded their best economic progress ever in 1980. Calculated in terms of constant price, the province's total agricultural output increased by 3.7 percent over the record year of 1979. Total income of the province's rural communes was a record. The number of communes with a per capita income over 400 yuan increased 12 percent over that of 1979. In 1980 rural commune members sold an average of 115 yuan worth of farm and sideline products to the state and urban areas--a record. Rural living conditions markedly improved. In 1980 the per capita living expenses of rural commune members was 225 yuan, an increase of 16.1 percent over the 1979 level. [Changchun Jilin Provincial Service in Mandarin 2200 GMT 16 Apr 81 SK]

AGRICULTURAL APPROPRIATION--Financial departments at all levels in Jilin Province have rendered support for agricultural production and construction. In 1980 the state finance appropriated 100 million to the province as funds for supporting agriculture. In addition, the provincial finance allotted 7.5 million yuan as revolving funds for agricultural construction. These funds are mainly used for building grain, stockbreeding and cash crop centers. Financial departments at all levels in Jilin have also helped 247 poor brigades tap their financial resources and promote production. [Beijing Domestic Service in Mandarin 0400 GMT 27 Apr 81 OW]

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REASONS FOR DECLINE IN CHEMICAL FERTILIZER OUTPUT GIVEN

Shenyang LIAONING RIBAO in Chinese 27 Feb 81 p 2

[Article: "Xi Kangmin [1153 1660 2404], Head of the Liaoning Provincial Bureau of Agriculture, Answers a Reporter's Questions on the Problem of Agricultural Fertilizers This Year"]

[Text] This year's output of chemical fertilizers is much lower than last year's. We should actively use this period before spring sowing to work hard at collecting farm manure, returning stalks to the fields, and turn peat, pond silt and other fertilizer resources into fertilizer as much as possible. We should establish a policy adapted to increasing the price of fertilizer. We advocate planting green manure. We should pay attention to efficient use of available chemical fertilizer, because using chemical fertilizer on low-yield land which lacks fertilizer can make fertilizer more effective than using it on fertile land. Top dressing should be deeper to increase the effectiveness of the fertilizer.

We understand that this year Liaoning's output of chemical fertilizer is down and there is less agricultural fertilizer than last year. We took this question to Comrade Xi Kangmin, deputy director of the provincial Agricultural Office and head of the provincial Bureau of Agriculture. He gave the following answers to questions posed by the reporter:

Question: We have heard that Liaoning's output of fertilizer is lower this year than last. Is this the situation?

Answer: Yes. Due to insufficient raw materials and poor management, some county-run small nitrogen fertilizer plants have stopped production or started producing other things. Since September 1980, to protect the Anshan Steel Complex and the Liao River Fertilizer Plant, medium-size and small chemical fertilizer plants which use natural gas as a raw material have stopped production. Also, the urea produced by the Liao River Fertilizer Plant is distributed throughout the country, so only a part of it is distributed for use in Liaoning. Therefore, we estimate that the province's output of nitrogen fertilizers will be much less than last year.

Question: Then what is the situation regarding farm manure in the province?

Answer: In general, the volume of farm manure collected is not as great as last year, and in the entire province it is about 8 percent less. The main reasons are:

1) last year there were droughts and water shortages in some areas so the grass did not grow and this influenced the collection of manure in the summertime; 2) last year when they were establishing systems for production responsibility, some communes and brigades disbanded the ranks which specialized in collecting manure, and this influenced the annual accumulation; 3) some communes and brigades rely solely on chemical fertilizers and have overlooked the accumulation and use of farm manure. The fact that chemical fertilizers and farm manure are insufficient is very unfavorable for increasing production in agriculture this year.

Question: What kind of measures can be adopted to make up for the insufficiency of chemical fertilizer and farm manure?

Answer: With the shortage of chemical fertilizers this year, we should actively mobilize the masses to vigorously collect manure in the period before spring sowing. In the mountain areas in the east and places where there are many grasses we should actively struggle to return some of these grass stalks to the fields. Places where there is peat, pond silt and other fertilizer sources also should be used to make fertilizer as much as possible. At the same time, we should establish a fertilizer policy which provides reasonable rewards. It is appropriate to increase the price of fertilizer so as to stimulate the initiative of commune members to invest in fertilizer--this is one important measure to increase organic fertilizers. In short, there is great potential for collecting farm manure and we must tap this potential. When Luyang Commune in Beizhen County was setting up its system of production responsibility, it established a special team for collecting manure and promoted collecting manure year round. There was an article about this in the 16 February issue of LIAONING RIBAO. This is a very good experience. According to a survey, every high-production commune and brigade gives very serious attention to collecting farm manure and on the average there is one man and one cart per hundred mu, or about 10 percent of the labor force which specializes in year round manure collection. If we want to collect more farm manure, communes and brigades must make this decision; otherwise farm manure will not be collected in sufficient quantity or well enough.

Question: Is planting green manure an important way of expanding organic fertilizer?

Answer: Many years of practice prove that the use of green manure improves fertility and is an important measuring tilling and improving the land. In the western and northwestern parts of the province, which are windy, sandy, dry and sparsely populated, for many years they have maintained a system of rotating food grain crops and oil crops, with very clear effectiveness. In recent years, in areas of level and fertile land, where land is scarce and the population large, there have also been some experiments in planting green manure crops. LIAONING RIBAO has written about the Yi County method of interplanting grain and fertilizer crops and plowing them under mechanically on several occasions, and at the time it increased production and also had a residual effect. This is a breakthrough in our province for the use of green manure crops. The Yi County experience definitely is worth careful study.

Question: Since the quantity of chemical fertilizers is small this year, how can we use the available fertilizers economically and effectively to increase production?

Answer: First, we must use our available fertilizers well. Generally speaking, chemical fertilizers should be used on low-yield land which lacks fertilizer. This can be more effective than putting it on fertile land. Chemical fertilizers are generally fast-acting, especially nitrogen fertilizers, and their movement and change in the soil is rapid, so that if they are not applied properly they can cause the fertilizer elements to be lost. At present many communes and brigades when top dressing do not pay attention to deep application so that there is leaching and a great deal of waste. Thus, we suggest that fertilizer received before spring sowing be used in combination with farm manure as much as possible as a starter fertilizer (except in paddy fields). Top dressing must be done deeply to reduce leaching out and to increase the effectiveness of the fertilizer.

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CSO: 4007/288

CONFERENCE RESOLVES TO STRIVE FOR FOURTH BUMPER HARVEST

Shenyang LIAONING RIBAO in Chinese 3 Mar 81 p 1

[Article: "All-Province Conference of Municipal and County Heads Points To Good Situation in the Province's Rural Areas Rarely Experienced Since Founding of the Nation; Mobilize Cadres and Masses to Secure a Fourth Bumper Harvest Year; Comrades at the Conference Considered That the Call of the Provincial Committee To Stress Rural Abundance and Economic Activity Conforms to the Spirit of the Third Plenum of the Party Central Committee and Has Promoted Development of Agricultural Production; They Were Fully Confident of Plans to Strive for New Developments in Agriculture This Year"]

[Text] From 22 to 26 February, the Liaoning Provincial People's Government convened in Shenyang the first conference of municipal heads (specialists) and county (district) heads since the smashing of the "gang of four." In accordance with the directive of the party Central Committee and the State Council with regard to further economic adjustment and political stability and with the resolution of the Fifth Session of the Third Plenary Session of the People's Congress, the conference studied and established the agricultural production mission for the province this year: to mobilize the rural cadres and masses to redouble their efforts, to work hard and strive for new development in agricultural production in the province in 1981, to strive for a fourth bumper harvest year.

The conference was chaired by Chen Poru [7115 3869 1172], provincial chief and secretary of the Liaoning Province Chinese Communist Party Committee.

At the meeting, Zhou Mingan [0719 2494 1344], deputy province chief, gave a report, "Continue To Establish Party Policy Deeply, Strive To Raise the Level of Scientific Farming, Work Hard for New Developments in Agricultural Production in 1981." Zhang Zhiyuan [1728 4249 6678], deputy province chief, gave a speech emphasizing scientific and technical work in agriculture and discussing further promotion of rapid development of agriculture in Liaoning. Song Jian [1345 0494], head of the Rural Work Department of the provincial committee, gave a speech on the question of further strengthening and improving the responsibility system in agricultural production. Zhang Zhengde [1728 2973 1795], secretary of the Liaoning Chinese Communist Party Committee, talked about being more thorough in establishing the party's rural economic policies and strengthening and improving party leadership in rural work.

In discussions among comrades at the meeting, everyone told of practice in his own district and spoke glowingly of the generally good situation in the rural areas. They recognized that the call of the provincial committee to stress rural abundance and economic activity, from the standpoint of practice, conforms to the spirit of the Third Plenary Session of the Party Central Committee, has been effective and has promoted development of production, and that a good situation rare since the founding of the country has appeared in the rural areas. According to recent statistics, gross output of grain and beans topped 24 billion jin in the county last year, which was higher than the great harvest of 1979 and the highest recorded in our province's history. There were great increases in oil crops and cotton over 1979, and the volume of tussah coccoons purchased reached 1.2 million dan, which was the highest recorded in history. Accumulation has increased and the average income the rural commune member receives from the collective has reached 120 yuan per person. What is even more noteworthy is that over 2,500 brigades which have had long term financial difficulties have made preliminary steps to change their impoverished situation. In the rural areas generally there is a new atmosphere of political stability and prosperous economic development. As the masses describe it: popular opinion has never been so approving, policies have never been so good, production enthusiasm has never been so great and output has never been so high.

The conference set forth the important tasks in agricultural production in Liaoning for 1981: further adjust agricultural structures and distribution of materials and place agriculture, forestry and animal husbandry on the same level; with guarantees of steady increases in food grains, develop oil and cash crops as local circumstances permit; the area planted in grain and beans should basically be set at last year's level, but efforts should be made to raise output per unit so as to bring in a bumper crop in agriculture. On the basis of increased production we should constantly raise the commodity rate and the level of collective accumulation and commune member income.

Through conscientious discussion, the leadership comrades of municipalities and counties were fully confident of completing the planned targets set by the state. But they also noted that there are quite a few difficulties to be faced in completing this year's agricultural production mission: this year state investment in agriculture has been reduced, the supply of chemical fertilizer has declined, the paddy fields in the central part of the province lack water and the drought in the western part is severe. There are also many practical difficulties in production and in people's livelihood in a few disaster areas. Comrades at the conference considered that as long as we continue to develop the might of policy, develop favorable conditions, overcome unfavorable factors, and get down to some hard work, we may be able to complete and overfulfill our agricultural production mission for 1981.

At the end of the conference, Chen Poru gave a concluding speech. He made some specific demands with regard to striving to reap a bumper harvest in agriculture this year. Under the leadership of the state plan, each area, in accordance with its special characteristics, should develop what it is good at and arrange agricultural production to conform to local conditions, strengthen and improve the responsibility system of agricultural production, and strengthen the building of agricultural scientific ranks in all regards; government at all levels should earnestly try to resolve all practical questions, mobilize the scientific and technical personnel's initiative, strive to raise the level of scientific farming, further improve basic construction in farm fields, stress transforming mountains and taming rivers and planting trees to create forests, and improve the natural condition of windy, sandy and dry areas of our province; cadre ranks should be stabilized, in particular those of communes and brigades, in order to guarantee the implementation of policy and the development of production; all means available should be used to reap a bumper harvest in agriculture, forestry, animal husbandry, sideline production, and fisheries so as to make a new contribution to the state. In his summation, province chief Chen Poru also made plans for industry, finance, commerce, metallurgy, city building, and social order for government work and he demanded that all fields and enterprises make efforts to support agriculture and strive to improve spring plowing activities.

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BRIEFS

SPRING FARMING--According to agriculture departments, by 18 April Liaoning Province had planted 6.18 million mu of corn, sorghum, grain, soybeans, sunflowers and beets, amounting to 15 percent of the acreage to be planted and an increase of 1 million mu as compared with the corresponding 1980 period. Chaoyang Prefecture had planted 1.63 million mu of field crops, 23 percent of the acreage to be planted. Rain fell in most parts of the province in the spring, enabling fields in Chaoyang, Jinzhou, Fuxin and Dalian areas which used to be plagued by drought to have enough soil moisture for spring farming. [Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 24 Apr 81 SK]

DOMESTIC PRODUCTION--The Liaoning Provincial Agricultural Bank has released loans to support the state farm workers in developing household sideline production. By the end of March, the provincial agricultural bank released a loan of 246,500 yuan to support 829 households in Yingkou Municipality to develop domestic sidelines production. [SK290643 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 27 Apr 81]

PORK SALES INCREASE--According to recent statistics compiled by the department concerned, the 1980 Liaoning provincial pork sales volume was 582 million jin, a 23.2 percent increase over that of 1979. The provinical per capita consuming volume increased from 17 jin in 1977 to 42 jin in 1980. [SK090701 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 7 Apr 81]

SPRING FARMING LOANS--Banks and credit cooperatives in rural areas of Liaoning have issued agricultural loans in a timely manner since the beginning of spring to support spring farming preparations. They had granted 390 million yuan of loans by the end of March, an increase of 60 million yuan over that of the corresponding 1980 period. These loans have been extended to communes to buy chemical fertilizer, seeds, insecticide, plastic sheets and other materials for spring farming. [SK121044 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 10 Apr 81]

CSO: 4007/385

BRIEFS

ULANQAB LEAGUE CASH CROPS--Ulanqab League, Nei Monggol, planted 1.61 million mu of sesame fields and 630,000 mu of rape seeds and sunflowers in 1980 with a total output of 75.75 million jin. Income from oilbearing crops alone accounted for 20 percent of the total income distribution to the league commune members. In 1981 this league plans to cultivate 2.6 million mu of oilbearing crops, develop 100 cash crop base areas and promote sugar beet cultivation in Horinger, Liangcheng, Fengzhen, Xinghe and Zhuozi counties. It also plans to cultivate hemp, flue-cured tobacco and medicinal herbs. In addition to developing cash crops, this league also raises livestock and keeps bees. The whole league now has 4.59 million head of animals and 4,600 swarms of bees. [SK221356 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 21 Apr 81]

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BRIEFS

GRAIN SOWING--Qinghai Province has sown 5 million mu of grain crops, 80 percent of the projected grain acreage for 1981. [SK192207 Xining Qinghai Provincial Service in Mandarin 1030 GMT 18 Apr 81]

CSO: 4007/385

SHANDONG

BRIEFS

SHANDONG PREPARES SPRING SOWING--In order to win a bumper harvest in agriculture this year, the numerous rural villages in Shandong Province have given early attention and have acted quickly to prepare for spring sowing and production. Everywhere most production plans have been formulated; various forms of a system or responsibility for production continue to be checked and improved upon; and the seeds, fertilizer, pesticides, and other materials needed for production have been made ready. In the implementation of their production plans, numerous places and units have given attention to the unity of the micro-economy and the macro-economy, placing grain production in the primary position. While insuring consistent increases in grain output, they have actively developed economic crops. Heze Prefecture plans a grainfield area of 8 million mu, a 300,000 mu increase over last year, and the planting to cotton of 2 million mu, an 80,000 mu decrease from last year. Changji Prefecture has unequivocably declared that there can be no decrease in the grainfield area of any commune or brigade, and that the area for economic crops may not exceed 30 percent of the total cultivated area. The area for each kind of crop must remain relatively fixed and efforts made to increase per unit yields for a constant increase in total output. In order to do a solid job of spring season production this year, early attention was given everywhere to the readying of materials. Every effort was made to move ahead with some farm work with every manner of means employed to seize the initiative. Changji Prefecture accumulated more than 78 million carts of manure during the winter season, of which more than 34 million cartloads have been transported to the edges of fields for use. The prefecture has also readied 200,000 tons of chemical fertilizer, accumulated 9.75 million jin of wood ashes and 560,000 jin of the cake used in the growing of tobacco, and has built 900,000 tobacco seedling beds in which 310,000 seedlings have been planted. It has also organized agricultural technicians for a general check of seed sweet potatoes so that problems uncovered may be promptly solved. Huimin Prefecture recently convened a special meeting for "combating drought and double protection," which emphasized a concerted effort to clear silt from Yellow River diversion channels in a serious effort to provide moisture to the wheatfields and irrigate them in spring. [Excerpts] [Jinan DAZHONG RIBAO in Chinese 7 Feb 81 p 1] 9432

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BRIEFS

FARM MECHANIZATION MEETING--A regional discussion meeting on mechanization of agriculture and animal husbandry was held recently in Usu County. The meeting decided to start zoning work on agricultural mechanization in 30 more counties. Similar work was started on an experimental basis in seven counties in 1980. [OW141205 Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 9 Apr 81]

SPRING AFFORESTATION--Beijing, 7 Apr (XINHUA)--Since the beginning of spring this year, Xinjiang Uygur Autonomous Region has planted 100,000 mu of trees. Silkworm-breeding Hotan Prefecture in the region plans to plant 1 million mulberry trees along farm ditches. [OW141205 Beijing XINHUA Domestic Service in Chinese 0121 GMT 7 Apr 81]

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CSO: 4007/295

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TITLE: "The Characteristics of Soil Genesis and the Regularity of Soil Distribution in Guizhou Province"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 11-23

TEXT OF ENGLISH ABSTRACT: Guizhou is a mountainous plateau situated in the subtropical region. Desilicification and allitic processes are both occurring in the soil forming process of the regional soils, such as yellow-brown earth, yellow earth, red earth and latosol. The effect of parent material on the soil depends on the types and properties of different parent rocks. For regional soils, parent material is the criterion for the classification of the soil family level. The formation and property of regosols are affected more greatly by the parent material, while the influence of regionality is only reflected in the classification of the suborder level. The influence of vegetation and cultivative activity on the soil genetic properties is reflected markedly in the fertility of the soil and the most remarkable influence of human activity is on paddy soils.

The distribution of the soils in Guizhou has not only the popular regularity of horizontal and vertical zonality, but also the regularity of distribution

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 11-23]

characterized by the soils of the highland. For example, the distribution of the soils on the slopeland at the margin of the plateau is affected both by the variation of hydrothermal and geomorphological conditions. In addition, the regional soil distribution is also affected by human activities, such as long periods of cultivation, fertilization and improvement measures, etc.

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TITLE: "Evaporation and Movement of Soil Water under Different Soil Moisture Conditions"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 24-37

TEXT OF ENGLISH ABSTRACT: The experiment of evaporation and movement of soil water was carried out in polymethylmethacrylate cylinders 5 cm in diameter and 120 cm high. The soil used in the experiment was a heavy loam, and $CaCl_2$ was used as the tracer. Four treatments were laid out based on different soil moisture contents: (a) the maximum hygroscopicity, (b) wilting percentage, (c) the moisture content of the capillary bond disruption, and (d) the minimum water-holding capacity.

The experimental data showed that, under evaporation conditions, the lower limit of water in liquid form in soil is near the wilting percentage. When soil moisture content is lower than the wilting percentage, the movement of the soil water in liquid form is usually extremely weak.

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 24-37]

Following the increase of soil water content from the moisture content of the capillary bond disruption to the minimum water-holding capacity, the film-moving mechanism tends to turn into the capillary-moving mechanism. The moisture of the capillary bond disruption is a turning point of change of the type of soil water movement.

It has been shown in the experiment that under conditions of the minimum water-holding capacity, the evaporation intensity of soil water in the first five days is always greater than that from the free-water surface. From the beginning of the minimum water-holding capacity, the evaporation can be divided into three stages with the decreasing of soil water content. The equation for cumulative evaporation may be expressed as $Q = AT^b$, where A and b are parameters which can be obtained from a logarithmic plotting. From the beginning of the moisture of the capillary bond disruption, the evaporation process can also be distinguished into three stages, but the evaporation intensities of the last two stages are two constants of minute value.

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TITLE: "Studies on the Characteristics of Nitrogen Supply in Paddy Soils. I. Observation of Soil Nitrogen Supply in Different Paddy Soils"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 50-57

TEXT OF ENGLISH ABSTRACT: The present paper deals with the relationship between the soil nitrogen supply and the rice yield. The pot experiment of late rice on four representative paddy soils in Zhejiang Province, namely, bluish gray clayey soil (a stagnogley paddy soil), red grume soil (a percogenic paddy soil), rust mottled clayey soil and gray clay loamy soil (periodic submergic paddy soil), was carried out with a fertilizer labeled ^{15}N. The preliminary results are summarized as follows:
(1) The rice plants on the more fertile soil, such as the bluish gray clayey soil, absorbed more soil nitrogen, 1.3 times that on the gray clay loamy soil with a lower fertility. Therefore, it seems that the fertility of soil may be considered a very important factor which significantly affects the absorption of the soil nitrogen by rice plants.

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 50-57]

(2) Among these paddy soils, the variation of soil nitrogen supplying capacity (A values) has shown a good correlation with the amount of absorbed soil nitrogen by rice plants. In addition, application of chemical fertilizers may promote the rice plant to absorb more soil nitrogen due to the so-called "priming effect," especially in the light textured and less fertile soils, such as the gray clay loamy soil.
(3) Except for the gray clay loamy soil, the variation of recovery rates of labeled nitrogen fertilizer in other soils was in a relatively small range of 29.5-39.5 percent, even under the conditions of different amounts of fertilizer applied with the same application method.
(4) It was shown that the dominant proportion (61.62 - 87.15 percent) of the total nitrogen absorbed by rice plants in different paddy soils was that from the soil. Consequently, it is of great importance for the cultivation of late rice to promote the nitrogen supplying capacity of soil.
(5) When chemical nitrogen fertilizer was applied in combination with farmyard manure, more soil nitrogen and nitrogen of organic manure were absorbed by rice plants, which induced a rather higher proportion of the nitrogen from soil and organic manure in the total nitrogen contents and a lower proportion of fertilizer nitrogen as compared with the single application of chemical fertilizer. In the combined application plots, rice plants had a healthy growth and higher yields, particularly on the soils with lower fertility, such as the red grume soil and gray clay loamy soil.

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 50-57]

(6) In the case of a higher dosage of chemical nitrogen fertilizers, rice straw was applied as a supplementary manure in several plots and it affected well the promotion of grain yields. This may contribute by its harmonized action for the nitrogen supply and the elimination of the unfavorable effect caused by heavy application of chemical nitrogen fertilizer.

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TITLE: "Effect of CP on the Nitrification and Microbial Activity"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 58-70

TEXT OF ENGLISH ABSTRACT: Experimentation has shown that the effect of CP on the inhibition of nitrification is significant. However, the effect of CP on the decrease of N loss is varied with soil properties. The beneficial role of CP on retaining nitrogen in ammonium form in acid paddy soil may not be attained in calcareous soil since the volatilization of NH_4-H is usually enhanced in the soil.

In the present experiment, the uptake of fertilizer nitrogen by the rice plant through the application of CP is increased slightly, but no response is found in crop yield. Field experiments have also proved that the good effect of CP on the rice yield is found in infertile soils on which only a small quantity of nitrogen fertilizer or manure is applied, or even on calcareous soil.

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 58-70]

It has also been shown that CP inhibits nitrite bacteria selectively; therefore, within a concentration range of 1-10 ppm, no harmful effect of CP is found on soil respiration, ammonification, non-symbiotic nitrogen fixation and the nitrogenase activity of Rh. Leguminosarum-Frank.

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TITLE: "A Primary Study on Phosphate Adsorption of Soils"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 71-79

TEXT OF ENGLISH ABSTRACT: This paper deals with the characteristics of phosphate adsorption isotherm of soils and clay minerals. The concentration of phosphate solution was divided into nine levels, of which KH_2PO_4 ranged from 15.5 to 310 P per ml, and the solutions were prepared and mixed with various amounts of KCl solution (as supporting electrolytes) to keep the ionic strength of the solution at a constant (0.01 M). The ratio of sample weight to solution volume is 1:20 for soil, 1:5 for montmorillonite, 1:10 to kaolinite and 1:50 for anion exchange resin. Each sample was shaken for 1 hour, and then stood for 24 hours at 35°C. The amount of P adsorbed was calculated from the difference between initial and final concentration of phosphate in the solution.

The phosphate adsorption data of the samples were plotted according to the conventional Freundlich and Langmuir equations expressed as follows:

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 71-79]

$$Y = KC^{1/n} \qquad (1)$$
$$1/Y = 1/M + b/C \qquad (2)$$
$$C/Y = K/M + C/M \qquad (3)$$

where Y is the amount of P adsorbed per unit of sample, C is the equilibrium P concentration, M is the maximum P adsorption, and K, b and n are constants. Equation (3) gives the best result because the maximum adsorption (M) of the samples calculated from equation (3) agreed with the values of observation as mentioned in the table.

It is noteworthy that, in certain ranges of concentration the amount of phosphate adsorbed is not dependent on the concentration of phosphate in the solution. It seems that this phenomenon is related to the agglutination of particles of soils or clay minerals. This phenomenon disappeared immediately when the samples were ground finely or the time of shaking was prolonged.

When the initial pH of the phosphate solution is 6.0, the amount of P adsorbed of the samples is negatively correlated well with the pH value of the equilibrium solution, except for red earth.

It might be indicated that the disassociation of protons from the -OH group at the colloid surface and deprotonation of $H_2PO_4^-$ ions occur in the course of phosphate adsorption of soils and clay minerals.

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TITLE: "On the Classification of Basic Categories of Fluvo-aquic Soils"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 80-86

TEXT OF ENGLISH ABSTRACT: The fluvo-aquic soils widely distributed in the great plain of north China have developed on the recent alluvium under the influence of seasonal fluctuation of groundwater. Due to the variation of texture and water regime of soil, the degree of soil development is quite different, which leads to the occurrence of the different patterns of land use. The present article deals with the study of the classification of basic categories of fluvo-aquic soils.

The soil families of fluvo-aquic soils are mainly distinguished based on the texture of alluvium on which the soils are developed, and the textural profile may reflect the characteristics of soil formation processes, the distribution and location of genetic horizons and the hydrological conditions, and these characteristics can influence the development and utilization of the soils.

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 80-86]

The soil species are classified on the basis of the kinds, depth, location and arrangement of characterized horizons in the profile and patterns of solum structure with distinct differences in the development and fertility of the soils.

The characterized horizons which may constitute different patterns of solum structure include the textural horizons and special horizons. The textural horizons are the fundamental components of the solum structure of the soils, and are divided into six grades in accordance with the different properties in texture, while the special horizons are characterized by their unique morphological features, e.g., buried relict layer, lime concretion layer, peat or muck layer, and anthropic epipedon, etc. Due to the different arrangement and composition of the characterized horizons, various patterns of soil solum structure are formed.

The delimitation of the horizons in solum structure is also discussed in this paper.

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TITLE: "Studies on Potassium-bearing Minerals in Soils. II. The Relationship between the Contents of Potassium-bearing Minerals and Slowly Available Potassium in Some Soils of Hunan Province"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 81 pp 87-96

TEXT OF ENGLISH ABSTRACT: The composition of clay minerals and the contents of K-bearing minerals and slowly available potassium of nine samples were determined by chemical and X-ray diffraction methods. The results showed that the clay minerals present in the clay fraction ($< 2\mu$) of all these samples were hydromica, chlorite, kaolinite and montmorillonite, etc. The content of K-bearing minerals was very high (35 percent) in the soil derived from purplish shale, followed by that in soil derived from lacustrine deposits (25 percent), while that in the other soils ranged only from 14-19 percent.

Statistical data from the results revealed that there was no correlation between the amounts of slowly available potassium extracted by 1 N HNO_3 and the content of potash feldspar, but the former was well correlated with the content of mica

[Continuation of TURANG XUEBAO No 1, Feb 81 pp 87-96]

(r = 0.957). However, the amounts of the slowly available potassium extracted with 1 N HNO_3 either one time or five times were significantly correlated with the mica content in the clay fraction ($< 2\mu$) of the soil, but not correlated with the mica content in other fractions.

The kinetic investigation appears to indicate that the mica in the soils derived from purplish shale and lacustrine deposits looks like trioctahedral biotite, while that in the other soils generally belongs to dioctahedral muscovite.

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